DOCUMENT RESUME

ED 345 693 IR 015 499

TITLE Development Communication Report, 1991.

INSTITUTION Agency for International Development (IDCA), Washington, DC. Clearinghouse on Development Communication.

PUB DATE 91

NOTE 93p.; For the 1990 issues, see ED 329 218.

AVAILABLE FROM Clearinghouse on Development Communication, 1815 North Fort Myer Dr., Suite 600, Arlington, VA 22209.

PUB TYPE Collected Works - Serials (022)

JOURNAL CIT Development Communication Report; n72-75 1991

EDRS PRICE MF01/PC04 Plus Postage.

DESCRIPTORS Acquired Immune Deficiency Syndrome; Community Involvement; Computer Networks; *Data Collection; *Developing Nations; Development Communication; Educational Radio; *Evaluation Methods; Foreign Countries; Health Education; *Indigenous Populations; *Information Technology; Interviews; Program Descriptions; *Program Evaluation; Telecommunications

ABSTRACT

The four 1991 issues of the newsletter "Development Communication Report" are primarily concerned with the use of communication technologies in developing countries to educate the people. Evaluation is the theme of the first issue, which contains the following articles: "Evaluating Communication Programs: Means and Ends," "Making a Splash: How Evaluators Can Be Better Communicators," "Choosing the Right Tools: A Guide to Data Collection," "Communication as a Data Collection Tool," "Do's and Don'ts for Interviewers," "Designing Questionnaires," "Radio Enriquillo: An Experience with Self-Evaluation," "Who Interprets? Who Decides? Participatory Evaluation in Chile," and "Eight Ways to Make Communication Evaluation More Useful." The second issue features articles contributed by readers. It includes: "Community Communication: Getting Beyond Information Overflow, Communication Undernourishment," "Participatory Radio in Bolivia," "Harnessing a White Elephant: How an Audiovisual Facility in Malawi was Redirected To Meet Local Needs," "Picture Perfect: Generating Graphics Electronically," "Demystifying Technology through Solar Power," "Guidelines for Producing Training Films and Videos" "Motivating Economic Action," and "The Overmarketing of Social Marketing." The lead article in the third issue sets the theme: "Indigenous Communication and Indigenous Knowledge." Other articles include: "Reinforcing Campesino Wisdom in the Andes," "Analogy in Health Education: Using the Familiar To Explain the New," "The 'Fertilizer Bush' Drama," "Tips for Documenting and Transferring Local Knowledge," "Challenging Tradition in Nigeria," "Sacred Messages for AIDS Prevention," "An African Healer Speaks Out on AIDS," and "Weaving Together Folk Media and Mass Media." Information technology is the focus of the last issue: "Information Technology: What About the Plain Old Telephone?" "Packet-Radio--The 'Missing Link'?" "SatelLife: Lifelines throughout Africa," "Econet: The Environmental Computer Network," "When Disaster Strikes: Communications Technology in the Sky," "When Disaster Strikes: Making Decisions on the Ground," "The (Solar) Power To Communicate," and "The Information Revolution Need Not Exclude the Poor." (DB)

ED345693

Development Communication Report

No. 72
1991/1

To Our Readers

Yes, this is still the *DCR!* The content hasn't changed. We simply gave it a facelift, with help from graphic designer Sue Wood. If you have comments about our new design, write to us. We like getting feedback.

This *DCR* looks at evaluation. As a result of investigating this topic, we can make two broad observations. First, evaluation of communication programs faces many of the same issues as evaluation of all development programs. Many of the lessons and techniques discussed here can be applied to non-communication programs.

Second, there are as many schools of thought on evaluation as there are on development communication, or for that matter, on development. A review of evaluation models reveals fundamental differences on the purpose of evaluation, whether to emphasize qualitative or quantitative methods, measurable outcomes or project processes, and whether to rely chiefly on project participants or outside evaluation experts. Rather than attempt to resolve these differences, we present a variety of perspectives on the question. We invite your reactions.

– *The Editor*

Inside this issue ...

Choosing the Right Data Collection Tools 5
Communication as a Data Collection Tool 7
Do's and Don'ts for Interviewers 8
Designing Questionnaires 9
Radio Enriquillo: An Experience with Self-Evaluation 12
Participatory Evaluation in Chile 15
Negotiating Competing Interests 18
Resources for Evaluation 20
What's New What's Coming 22
Eight Ways to Make Communication Evaluation More Useful 24

Evaluating Communication Programs: Means and Ends

by Nina Ferencic

Communication is a critical component of many development projects. In some cases, it may be the only intervention. Therefore, in order to improve the effectiveness of a project and to maximize its results, communication should be carefully and systematically evaluated.

Yet evaluation of communication programs is rare. Good and timely evaluation which is helpful to the program is rarer still. To encourage more evaluation but also

(continued on p. 2)

Making a Splash: How Evaluators Can Be Better Communicators

by Michael Hendricks

If a tree falls in the forest and no one hears it, did it make a sound? If an evaluation report falls on someone's desk and no one reads it, did it make a splash? None whatsoever, yet we evaluators still rely too often on long, jargon-filled texts to "communicate" our analyses, findings, and recommendations. We can, and must, do better.

Why? Because the only reason for doing evaluations is to make that splash, to have that impact, to change situations in a desired direction. Some call this "Speaking Truth to Power," but what good is speaking Truth if Power isn't listening? Unless we help

(continued on p. 10)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality
● Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

BEST COPY AVAILABLE

Development Communication Report

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 7,000. The newsletter is available free of charge to readers in the developing world and at a charge of $10.00 per year to readers in industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Institute for International Research, in association with Creative Associates International and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in the *Development Communication Report* are those of the authors and not necessarily of its sponsors. Original material in the Report may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication
1815 North Fort Myer Drive, Suite 600
Arlington, VA 22209 USA
Telephone: (703) 527-5546
Fax: (703) 527-4661

Michael Laflin, Director
Kathleen Selvaggio, Editor
André Roussel, Information Specialist
Earlington McLetchie, Librarian

Development Communication Report is produced using desktop publishing under A.I.D. contract DR-5831-Z-00-8028-00.

Means and Ends, continued from p. 1

avoid wasting time, resources and effort, it is essential to understand evaluation's role and to carefully build it into project activities from the beginning.

What is Evaluation?

There is no single, universally accepted definition of evaluation and the word probably means different things to different people. Furthermore, there is no single type of evaluation. A range of activities and models collectively form what could be called "evaluation research."

Evaluation research can be described as the systematic use of research methods and techniques to make decisions or judgements about a program. This broad definition encompasses activities that are tremendously varied in scope and purpose. For example, it includes informal spot checks to ensure that the quality of a radio announcement is clear and audible. It also includes detailed surveys to determine whether the goals of a mass media campaign to promote condom use, are actually being achieved, to locate the barriers to the achievement, and to discover the consequences of program actions.

Why Evaluate?

Evaluation research is conducted for many reasons and it may serve many purposes. It may have a legitimation role, by helping a program gain recognition, or an advocacy role, by building policy makers' support for a particular program or strategy, once its effectiveness is demonstrated. It may serve strictly academic research purposes by testing certain hypotheses or theories (or as a justification to attend international conferences!). Evaluation research can also be used to boost the motivation of program staff by showing program achievement, and it may serve to justify further funding of a program.

However, the most important function of evaluation research is to help program staff make informed decisions that will result in communication programs that reach more people with information they want and can use, in well-implemented programs that change in response to new information, and in development communication policies that make a difference.

Day-to-day development communication program decisions should be based on evaluation results whenever possible. This carries two implications. One is that programs are flexible enough to adapt to new insights and recommendations resulting from evaluation research. The other is that evaluation research is straightforward enough to provide timely feedback for program decisions.

When to Evaluate?

Evaluation is often thought of as something that comes at the end of a program. However, evaluation research that feeds back into an ongoing program in order to improve it is at least as or more important than end-of-project evaluation. To be useful, evaluation should provide information that is timely, relevant, credible and readable (that is, presented in a simple way).

A development communication program has different information needs at different stages of its project cycle. Various forms of evaluation research should be able to fill those needs accordingly.

The boxes (pages 3-4) outline the three main categories of evaluation – formative, process, and summative – which are used at the beginning, middle and end of a project, respectively. Each serves a different purpose, explores different questions, and is likely to be used by different people.

Who Should Evaluate?

Should evaluation be carried out by program participants or by outside evaluators? This decision depends partly on who will use the information. Process evaluation, for instance, is best conducted by program implementors rather than outsiders because they are the ones who will use the information to reorient their programs. For example, they may discover that people are not receiving radio messages because they are not being broadcast at times when the audience is most likely to listen, implying a need to reschedule broadcast times.

A summative evaluation, which is usually submitted to project funders or policy makers, often serves political functions and can provide information for keeping a project alive. In this sense, there may be political necessity in using an evaluator who is independent of the program and is therefore perceived to be more credible. Outside evaluators also may have more expertise and are more competent in evaluation design and methods than project staff. However, outside evaluators are often not familiar enough with the program to know where the main problems are, which aspects need evaluation, and where to look for the answers. They often do not spend enough time with the project and even more often do not recognize all the difficulties that the staff had to surmount to accomplish all that has occurred. In addition, evaluation by outsiders is often resented by program staff who view it as a threat to their jobs, not as a tool for the improvement of the program.

Evaluations involving project participants, on the other hand, are usually reported to have a large positive effect on morale and enthusiasm of the local personnel. Program staff are more informed about program specifics, but because of their close involvement with the program, they may lack the perspective needed for an objective assessment and are seen as less credible and as biased toward showing positive results.

The choice of evaluators will ultimately depend on a variety of factors, including the purpose of the evaluation, staff expertise, time-frame and funding. In many cases, however, a combination of outside evaluators and program staff is most appropriate since their mutual collaboration will give evaluators fuller insight into the program and avoid staff misconception about the evaluator's role – and thus, benefit the program.

What to Evaluate?

The pressure to provide relevant, useful and timely information that can be incorporated into program decision-making is increased when limited time, financial and personnel resources are available for evaluation — which is usually true. Therefore, it makes sense to collect information on those aspects of the program which most often explain program success or failure.

Exposure to information and comprehension of the messages are probably the first places to look at when trying to assess the progress, success or failure of an educational intervention or information campaign.

At a project's early stages, assessing exposure to information means finding out, first of all, the existence of specific channels of information and the proportion of the audience that has access to them. Communication channels include the mass media, institutional and interpersonal channels. The research may also examine the audiences preferences for information sources, which languages are understood, and levels of written or visual literacy. At the implementation stage, it means finding out whether the communication channels are being used as planned. Have the radio or TV messages been aired? How many and how often? Have the posters or pamphlets been distributed? How many and where? Have the training workshops been organized? Clearly, the specific questions will vary from intervention to intervention depending on which information and education channels were used.

At project end, assessing exposure to information means asking who, or what proportion of the target audience, was exposed to what specific messages through which channels and how often. Clearly, assessing whether the program reached the desired target audiences is the most important thing to find out about a program. If only a small proportion of the target audience was reached by the program, how can it be expected to have any impact? It is also necessary to find out who was exposed to the information. Who has seen the posters, heard the radio messages or lec-

(continued on p. 4)

amily planning field worker surveys mothers in Bangladesh. *S.J. Staniski*

Formative Evaluation

When Conducted

At the initiation or planning stage of a project

Purpose

To gather information for shaping the project strategies

Typical Questions

For example, in a communication campaign designed to promote the use of oral rehydration therapy (ORT) when children suffer from diarrhea,

- What are existing attitudes and beliefs about diarrhea?
- What are the major barriers to adopting oral rehydration therapy? Which ones can be addressed through communication?
- Which channels of communication, mass media as well as interpersonal, are likely to reach the target group?

Means and Ends, continued from p. 3

Process Evaluation

When Conducted

During project implementation

Purpose

To determine whether activities are proceeding according to plan

Typical Questions

- Were radio messages about the broadcast?
- Were health staff trained in ORT procedures and communication techniques?
- Was communication coordinated with the distribution of oral rehydration salts?

Impact Evaluation

When Conducted

At project end

Purpose

To determine whether the program has achieved its objectives, and to demonstrate its effectiveness

Typical Questions

- Do mothers understand how to prepare and administer ORT?
- Have attitudes about treatment of diarrhea changed?
- Have child deaths due to dehydration decreased?

tures, read the pamphlets? What were the characteristics of those exposed to the information? What proportion of the desired target audience was exposed, to which messages, and how often? Information about exposure also includes data on exposure to unintended sources of information, e.g., exposure to information through newscasts, foreign press or media and other sources not directly linked to the program.

Although exposure to messages may have occurred, comprehension does not necessarily follow. At the formative stage, message pretesting can look at whether people in the target audience understand the meaning of a message and its behavioral implications, and whether they perceive it as relevant. This exercise can be repeated on a larger scale at the end of a project to discover whether the communication campaign changed knowledge and attitudes. For example, do people understand that they have to take their child to be immunized or provide ORT or adopt certain new practices such as using a new condom with every episode of sexual intercourse? Do they understand where they can obtain the services or supplies such as ORT packets, condoms, etc.?

In addition to assessing knowledge or attitude change, it is important to collect information on whether practices or behavior changed following exposure to information. Are those who are exposed to the development messages and who understand them more likely to adopt the recommended practices than those not exposed?

It should be noted that change in behavior is always harder to achieve (and document) than changes in attitude or knowledge and, while it is the ultimate criterion for success, it is not the only criterion. Changes in knowledge and attitudes in one period may lead to changes in practices only later. Attitude and knowledge changes might indicate that an information or education campaign had the immediate effect expected but that changes in practices were impeded by factors beyond the control of the communication program – such as poor services, inadequate supplies or other structural and/or cultural factors. It is therefore essential that evaluation results be interpreted keeping in mind the broader context in which the program operates.

How to Evaluate?

Several articles in the following pages discuss different research designs, methods and tools for carrying out evaluation and I will not elaborate further on them here. However, it is important to note that just as there is no single definition of evaluation, there is no single "right" way of conducting an evaluation. The choice of methods and approaches depends on a variety of factors, including the information needs, the goals and desired outcomes of the evaluation, the nature of the programs being evaluated, the circumstances under which the evaluation is being conducted, and whether the questions can be answered with the research tools and funds available. For example, an innovative pilot project that may later be expanded on a large scale may require extensive survey methods that offer precise measurements and a high degree of reliability. On the other hand, a tried and true approach may only require simple, rapid assessment procedures using key informants and focus groups to make sure the program is on track.

As Judith McDivitt points out (see p. 5), what is needed is not the highest quality of evaluation but the *most appropriate* quality, given the human and financial resources available. There is often a trade-off between an evaluation's level of sophistication and the cost, time and expertise it requires.

In general, evaluation of development communication programs should be kept simple and to the point. Since it is impossible to find the answers to all research questions in a single study, it is necessary to give priority to those questions that meet the following criteria: whether the program is ready to make use of the information in a significant way; areas where previous experience suggests there is likely to be trouble; and those that can be answered with funds and tools available.

Nina Ferencic is a Communication and Evaluation Research Specialist in the Intervention Development and Support Unit, Global Program on AIDS, World Health Organization. She can be contacted at WHO/GPA, CH 1211 Geneva 27, Switzerland. Telephone: (41-22) 730-368.

Choosing the Right Tools: A Guide to Data Collection

by Judith A. McDivitt

Collecting data is probably the most visible – though not necessarily the most important – activity in the evaluation process. It may sometimes involve the most time and expense. To choose an appropriate and useful method, one must consider the wide variety of research tools available, the objectives of the evaluation and of the communication program, the level of precision needed to provide useful data and the costs of collecting these data.

Methods, Not Madness

Many data collection methods are available to the evaluator. They can be loosely grouped into observation, self-report measures, and review of existing documents. Each method can be used in a variety of studies small or large, simple or complex.

Observation consists of systematically watching and recording what people do. Examples of techniques range from observing staff behavior in a family planning clinic over several weeks, to living in a village and carrying out an anthropological study of the inhabitants and their environment, to asking mothers to demonstrate their skills in mixing oral rehydration solution. Observation has the advantage over self-reports of allowing the researcher to see what a person actually does in a situation, but there is always the worry that the subject changed his or her usual behavior because someone was watching. There is also a possibility of lack of objectivity – the observer may notice only some aspects and not others.

Self-report measures are the most common data collection tool in evaluations of communication projects. They include individual interviews or questionnaires [e.g., the widely used knowledge, attitude and practice (KAP) survey], tests of skills, and diaries of activities (e.g., foods eaten). Each individual method can use a simple or complex instrument (unstructured discussion, focus group discussion, structured but open-ended interview, or highly structured interview or questionnaire with pre-coded response categories). Each can be used with samples that are large or small, and more or less representative. Their advantage over observation is that the researcher can measure knowledge, beliefs and attitudes in addition to behavior. Possible problems are that the respondents may not understand the questions as intended. In developing countries, few people are used to educated outsiders sitting with them individually and asking them what they think or do. Another problem is that respondents may not answer them truthfully. For instance, because they want to please the interviewer, they may *say* that they visit the health clinic, but they may not actually do it.

Existing documents or statistics can also provide useful evaluation data. Sources include government statistics (both national and local), activity records kept by, for example, health centers or extension offices on number of patients seen or number of adopters of farming methods, sales records from pharmacies or agricultural suppliers, broadcast logs at radio stations, administrative records produced by the program, and data collected for other studies. Since such records are part of a data collection system that already exists, they can save time and money and provide critical background information. Several disadvantages are that the information collected may not match the data needs closely enough to be useful, the records may be inaccurate or out of date, or the data may be limited. Yet sometimes the data can be modified to be made more useful as an evaluation tool.

How to Choose

One crucial task for the evaluator is to choose from among the research designs and methods those that will best answer the evaluation questions within the resources available. This is not simply a choice based on the relative merits of a method. It also is guided by a clear understanding of the objectives of the program and of the evaluation, the audience for the evaluation, the level of precision required for credible results, and the resources available to carry out the evaluation.

First, one must know the purpose of the evaluation. Will the research pro-

(continued on p. 6)

Maria Elena LaRue

Choosing the Right Tools, continued from p. 5

vide information to develop or guide the program (formative evaluation), to assess the operations of the project (process evaluation), to assess the impact or effectiveness of the communication activities (summative or impact evaluation), or a combination of these? At a more detailed level, the evaluator also must know who needs the information, what kinds of decisions they must make, and how they might use the data. It is especially important to consider whether the program is open to making changes in response to the findings or if the results will simply be put on a shelf to gather dust – in which case one might want to spend the evaluation budget elsewhere.

Second, the evaluator must have a clear understanding of the objectives and processes of the communication or education program. The evaluator cannot design a useful evaluation or choose an appropriate method without knowing how the program expects to lead to its goals, including other influences or barriers to reaching these goals.

Take a simple example of a communication project that disseminates radio messages about family planning in order to convince listeners to go to the family planning clinic, where they will be persuaded to try contraceptives, and continue using them after the first visit. This model makes many assumptions. Three are that the audience has radios, that a family planning clinic is accessible, and that exposure to radio messages will influence their behavior. If the evaluator has a picture of the process of change, he or she can examine more than the question "Did use of contraceptives increase?" and can understand what happened during the program and how the process did or did not lead to the desired outcome.

It is particularly important in a large survey to plan ahead so as to reduce the chances of getting unusable data, but it is also important for even the smallest data collection activity. For example, one could go to a clinic and just observe vaccination activities, but the information gathered would be more useful if one had thought ahead about whom and what kinds of behavior to observe.

How Precise Must the Data Be?

Evaluations provide information for decision-making. Some decisions will require data of great precision (with minimal sampling error, high reliability and validity), others can be made with less precise information. Again, the evaluator needs to consider the evaluation goals and audience and the program objectives. For example, in developing a communication program or pretesting materials, an implementor will generally be able to make good decisions with narrative data (rather than percentages) from semi-structured interviews or focus group discussions with reasonably (rather than strictly) representative groups. On the other hand, an implementor who wants to justify large expenditures by a donor agency or government to expand a communication program will want more precise numbers to show changes in behavior, to provide evidence that the changes were the result of the program, and to show that extending this program to other regions will produce similar changes in behavior.

On the whole, quantitative methods tend to be more precise than qualitative methods. Representative samples allow one to make inferences about a larger part of the population with greater confidence. More complex research designs with before/after samples and control groups are more likely to allow the evaluator to pinpoint change in behavior and the influences on this change. However, collecting data of greater precision means additional time and expense.

The quality of the data also influences how precisely it can be interpreted. To obtain reliable data, it is extremely important to spend sufficient time developing the research instrument and to pretest it extensively with people in the target audience to make sure it measures what is intended and the potential respondents understand and can respond to the questions. It is also important that field workers ask questions, observe behavior and note responses in a standardized way, in the same order, without adding extra explanations (in the case of closed-ended questions). To do this, they need careful training, intensive practice, and continuous supervision.

Keeping Costs Down

Part of the evaluation process is weighing the balance between precision, usefulness, and cost. The evaluator has to choose the best design and data collections methods that fit within the human and financial resources available but also provide the information required by the decision-maker. In many cases, a simpler study can provide useful information for decision-making. For some programs, a rapid assessment by examining project records and conducting short interviews in several villages will be sufficient. However, to determine impact, more precise information is generally required for planners to believe the findings.

One way to cut costs is to scale down the evaluation by reducing the sample size or choosing a less representative sample, collecting data less often, or reducing the length of the interview or the observation period. A major cost in conducting surveys is transportation (particularly gasoline) and daily expenses. Choosing a sample that is less geographically disperse or choosing to sample fewer areas will save money. One could also choose a smaller sample, using contrast groups rather than randomly chosen individuals. Relatively more rapid assessment procedures would save time over a full-scale anthropological study. In making these choices, one must consider what will be lost in the precision or usefulness of the data.

Collecting data as part of general program operations by developing a management information or monitoring system can also provide useful data at lower cost. Another relatively low-cost method is to update or add categories to the forms already used by health or family planning clinics or extension systems to make their content more useful for project evluation.

Contrary to popular wisdom, data collection is not necessarily the most expensive and time-consuming phase of an evaluation. Deciding on the questions to answer and later analyzing and interpreting the findings is – or should be. Before collecting data, it is essential to spend time carefully thinking through what one wants to know and what one will do with the results. The greatest avoidable expense in evaluation is waste – collecting data that are never used because they don't answer relevant questions, because they aren't precise enough or are of poor quality, because the program or policy isn't actually open to change, or because the data aren't analyzed and reported in a useful and useable format.

There is no one right way of carrying out data collection. But following these general guidelines will help evaluators select an appropriate method for their needs.

Judith McDivitt has evaluated communication projects in Africa, Asia, the Middle East, and the United States. She is currently a Research Assistant Professor at the Center for International, Health, and Development Communication at the University of Pennsylvania. For further information, contact her at 3620 Walnut Street, Philadelphia, PA 19104, USA. Telephone: (215) 898-6371. Fax: (215) 898-2024.

Communication as a Tool for Data Collection

Informal media and communication techniques can be creative instruments for eliciting information, opinions or data in an evaluation or needs assessment. They can be especially useful in village settings, where people are not used to being asked to talk about their opinions or practices or are reluctant to tell their true thoughts. In such cases, culturally appropriate media serve as a device for helping participants project reality outside themselves. Below are a few ideas for tools for use with groups.

Poster series. A facilitator can present a series of posters with depictions of local settings or events, which respondents can put in any sequence to explain their history, problems, beliefs, practices, and values. Through interviews and informal discussion around the posters, a facilitator can assess a group's progress to date, as well as its long-range goals.

Source: Karla Kaynee/World Education

Maps and mapping. Participants might be presented with maps of the community, and asked to indicate important places, resources, problems or other aspects relevant to the development process. Or they might be asked to draw their own maps.

Pocket charts. Facilitators can present illustrated charts with pockets to identify knowledge, beliefs or practices related to a specific issue. For example, participants might be presented illustrations of different foods and be asked, "Which food do you think a pregnant women should eat?" They respond by inserting slips of paper into the pockets.

Self-drawing. Participants can be asked to draw themselves, their families, or key relationships in the community, using newsprint, the sand, or other locally available materials.

Open-ended stories. Facilitators pose a problem through a story that has no ending and ask participants to complete the story, reflecting their own views or experience. Any manner of presentation can be used, including audiocasette tapes or posters.

Visual dialogue. Participants might be filmed in their course of activities related to the project, and then asked to comment or react to the film. In Chile, this technique was used between two Indian communities, with each group commenting on the images and recorded statements of the other.

Creative arts. Participants can take part in or create their own mini-drama, mime, dance, role play, puppetry or poetry recitations. These art forms, which are part of the folk culture in many countries, are usually quite popular and evoke humorous, accurate and spontaneous expression.

*Adapted from **Participatory Evaluation: A Users' Guide** by Jacob Pfohl (1986). See page 20 for information on ordering the book.*

Do's and Don'ts for Interviewers

In order to get reliable responses through interviews, it is important to follow careful procedures. In a structured interview, it is essential that all interviewers ask the same question, in the same order, in the same manner. Even in unstructured interviews, the interviewer should take steps to minimize his or her role and maximize accurate, specific responses. Below are some general instructions for all interviewers.

Do ...

Karla Kavnee, World Education

- Give a clear statement of the purpose of the interview. This will help legitimize your presence and put respondents at ease. Respondents may want to know the purpose of the study, how they were selected, and if they can see the results.
- Emphasize the confidentiality of the material.
- Ask respondents if they mind your taking notes.
- Record comments or remarks just as they are given. The exact words people use to describe their feelings are important. If the comment is lengthy and you cannot write every word, make notes that give the sense and style of the comment. Use abbreviations that are understandable.
- Keep talking as you write. Ask the second question as you record the response to the first. Keep the pencil and interview guide as inconspicuous as possible. Keep eye contact with the respondent and do the writing unobtrusively.
- Focus respondents' attention on the question. If they want to talk about something else, politely but firmly refer them back to the questions. Smile and say, "That's interesting ... now what would you say about this question?"
- Get all the information you are asked to get. That means ask every question and record every answer – in the correct place. Check over the interview guide at the end of each interview before you leave. Say, "Now let's see if we've got everything," to allow you to look over each question to see that it is answered and the answer recorded correctly.
- Watch for vague, qualified or ambiguous answers. Never accept "Well, that depends" or "yes, but ..." answers to a question. When you receive such answers, probe for a more complete answer.
- Be flexible if unexpected problems arise.

Don't ...

- Offend the respondent in any way.
- Offer comments which seem to place a value judgment on the respondent's answers
- Let your tone betray you thoughts – keep an even tone.
- Cut the person off in mid-answer, even if the answer doesn't seem completely relevant to the question.

Excerpted from ***Evaluation Sourcebook for Private and Voluntary Organizations****, edited by Daniel Santo Pietro (1983). See page 20 for ordering information.*

Evaluation-speak

Evaluation documents are often filled with jargon and statistical terminology incomprehensible to all but the most highly trained specialists. The brief glossary of evaluation terms below is intended to help the uninitiated begin to decipher evaluation gobbledly gook.

Bias: The degree to which a subgroup of the population is disproportionately represented in a project or in an evaluation, relative to the entire target group.

Control Group: The segment of the target population not receiving services being evaluated, against which the effect of providing services to an experimental group is compared.

Experimental Group: A segment of the target population that receives project services. The impact of the intervention on this group is measured and compared with that of the control group.

Indicators: A measure that yields information or evidence about a problem or condition.

Inputs: The material resources, skills, effort and other ingredients that go into a program to achieve the objectives.

Needs Assessment: A type of evaluation used to appraise the fundamental concerns of a group or constituency, in order to guide program priorities, topics or strategies.

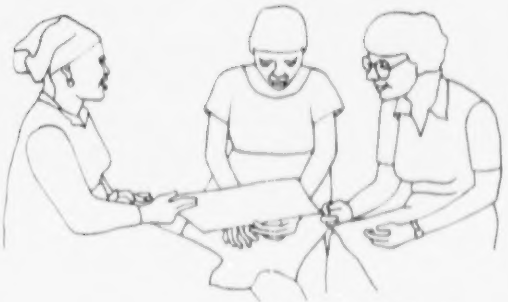
Outcome: The effects of a project, both intended and unintended, in terms of materials produced, knowledge gained, attitudes changed, and actions taken.

Response Rate: The proportion of persons who respond to a request for information compared with the total solicited.

Reliability: The consistency of information received from respondents and investigators. Reliability would be low if, for example, the same question elicited two different responses from individuals with essentially similar experiences. Reliability can be increased by pilot-testing the research instruments.

Triangulation: Using different sources to confirm a report or single source of evidence.

Validity: The degree to which the proposed evaluation methods will do what they intend to do. Validity is high if the conclusions reached can defensibly be made on the basis of the approach taken.



Karla Kaynee, World Education

Notes to Readers

We would like to thank all readers who returned the survey mailed with *DCR* no. 71 and urge others to return it as soon as possible. The response so far has already given us many new ideas for ways to change the publication in order to better serve your interests and information needs. We will report the full findings in a future issue.

The next *DCR* (no. 73) will be a "readers' issue," featuring some of the excellent articles voluntarily contributed by readers over the past year. Unlike this and recent issues, it will have no special theme. We invite additional contributions in the form of articles, case studies, book reviews, notices of resources or events, editorial commentary or letters to the editor. Materials might address field experiences, research findings or opinions on topics related to development communication. However, we cannot guarantee publication of all submissions. Articles that present an original experience or analysis on a communication topic of interest and that are written in clear, concise prose are more likely to be accepted. Also, we will give priority to contributions from Third World authors working at a grassroots level.

Contributions should be brief – 1,200 words or less for articles, 750 words or less for editorial commentaries and book reviews – and should be accompanied by a brief description of the author, as well as complete contact address, telephone and fax numbers, if available. We also welcome photographs or illustrations to accompany written materials. We will accept materials written in English, French or Spanish. Please submit all materials by May 1, 1991, to the Editor, at the address and phone numbers listed on page 2.

– *The Editor*

Designing Questionnaires

Questionnaires are one of the most common tools for evaluation. But composing a good questionnaire is more difficult than most people realize. If questions are badly constructed, the chances of getting a response that is accurate and easy to interpret are greatly reduced.

One should expect to draft many more questions than will be used in the final version. Many books on research methods provide detailed guidelines on selecting and formulating questionnaire items. Below are a few basic rules of thumb and a model format for constructing questions, using the hypothetical example of a communication program designed to encourage small farmers to adopt pesticide safety and agricultural conservation methods.

- Avoid superficial questions that encourage stereotypical uniform responses (e.g., Do you *like* attending the workshops on conservation techniques?).
- Avoid double-barrelled questions, since respondents may not know which part to answer (e.g., Do you practice composting and terracing?).
- Avoid questions that presume knowledge, experiences, or past practices that respondents may not have (e.g., After the workshop, did you continue to use pesticides without protective clothing?).
- Avoid technical words that respondents may not fully understand (e.g., Are the materials helpful in explaining sustainable agriculture?).
- Avoid questions that do not adequately define the extent of detail or the degree of thoroughness desired (e.g., What did you like about the radio program?).

Model format for questionnaire items

To measure knowledge change:

As a result of listening to the radio programs, to what extent did you learn more about the causes of soil erosion and flooding?

Greatly Moderately Slightly Not at all

To measure attitude change:

How much do you favor measures to protect trees and bushes in your community?

Greatly Moderately Slightly Not at all

To measure skills change:

As a result of attending the training workshops, to what extent have you learned skills or techniques to prevent soil erosion?

Greatly Moderately Slightly Not at all

Can you name and describe some of these techniques?

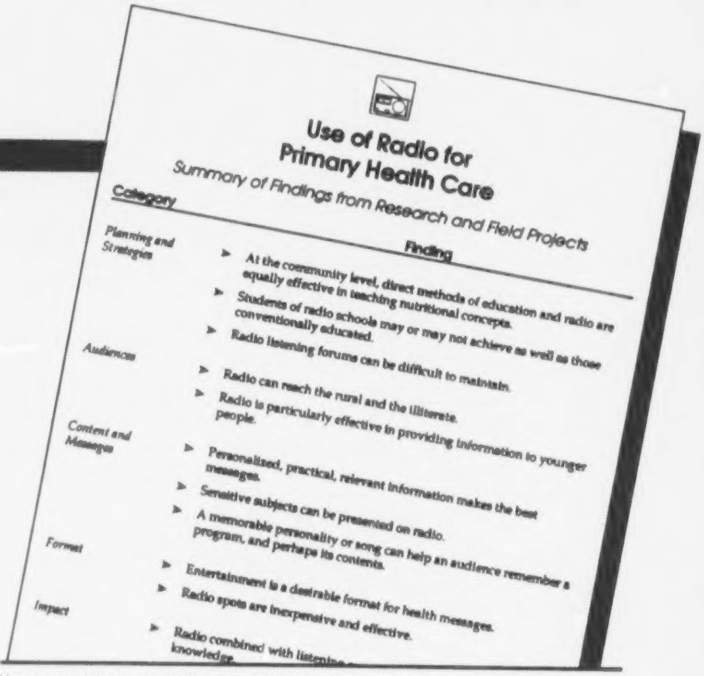
To measure behavior change:

Since participating in the workshops, how often do you practice conservation techniques when you farm?

Regularly Occasionally Not at all Don't Know

Adapted from ***How Are We Doing? A Framework for Evaluating Development Education Programs****, by Roland Case (1987). See page 20 for ordering information.*

Making a Splash, continued from p. 1



Use of Radio for Primary Health Care

Summary of Findings from Research and Field Projects

Category	Finding
Planning and Strategies	▶ At the community level, direct methods of education and radio are equally effective in teaching nutritional concepts. ▶ Students of radio schools may or may not achieve as well as those conventionally educated. ▶ Radio listening forums can be difficult to maintain.
Audiences	▶ Radio can reach the rural and the illiterate. ▶ Radio is particularly effective in providing information to younger people.
Content and Messages	▶ Personalized, practical, relevant information makes the best messages. ▶ Sensitive subjects can be presented on radio. ▶ A memorable personality or song can help an audience remember a program, and perhaps its contents.
Format	▶ Entertainment is a desirable format for health messages. ▶ Radio spots are inexpensive and effective.
Impact	▶ Radio combined with listenin knowledge

Using graphics and design principles, evaluation reports can present findings in a more succint and visually appealing way

our audiences to listen, all our good works will go for naught.

We can do better in at least two ways. First, we can employ more interesting techniques to communicate our findings; thick reports simply won't work anymore, if they ever did. Second, we can remember a few guiding principles to enhance all our messages. Let's first consider some better techniques:

Final Reports

If we must produce final written reports (and surprisingly often these reports are not required), then for everyone's sake, let's make them:

- **shorter** – no more than 15 to 20 pages per report, and always with an executive summary;
- **more true-to-life** – perhaps including direct quotes, personal incidents, short case studies, metaphors and analogies, and especially photographs whenever possible;
- **more powerful** – using active voice and present tense, featuring the most important information first, and using the sorts of graphics discussed below; and
- **visually appealing** – using modern graphics design principles, desktop publishing, and high-quality materials.

Other Written Products

In addition to final reports, other written products can be even more useful. Draft reports, for example, can be especially effective, precisely because they are still subject to change. I sometimes deliberately include material in a draft report that I have no intention of including in a final report, usually to raise sensitive or even controversial issues that are not receiving enough attention.

Other written products include interim progress reports, talking papers, question-and-answer statements, memoranda, written responses to other documents, press releases, "op ed" items in newspapers, speeches, written testimony, newsletters, and even articles in association or professional journals. In short, we evaluators have plenty of opportunities to present our findings, but we must be more creative at using these opportunities.

Graphics

Using graphics is not a presentation technique by itself, but they are so useful they deserve special attention. Pie charts, historical timelines, maps, small multiples, and pictographs are an effective communication technique for several reasons. They allow a large quantity of data to be displayed and absorbed quickly, they reveal patterns not otherwise apparent, they allow easier comparisons among data sets, and they can have a strong impact. Furthermore, we can use these graphics not only for *presentations* to audiences at the end but also to help guide our own *analyses* as we progress.

However, a book on "How to Lie with Graphics" could easily include sections on clutter, incorrect proportions (especially by the gratuitous use of three-dimensional effects), an overemphasis on artistic effects, broken or shifting scales, and failure to place findings in perspective or to adjust accordingly. Any of these errors could easily confuse or even mislead our audiences, so graphics must be used carefully.

Two overall suggestions might be useful. First, remember that selecting the proper graphic is *not* the first step in moving from data to graphics. The first step is for you, the evaluator, to determine your message. What specific point do you want to make? A second suggestion is to maximize the amount of "graphic ink" which presents actual data and to minimize the amount which presents grids, titles, and legends. Unfortunately, too may graphics are now cluttered with extraneous ink.

Personal Briefings

Briefings are almost always more effective than written reports for presenting evaluation findings, and they should almost always be used. True, they can be risky, since a poor presenter, poor selection of material, scheduling delays, audience moods and external events can affect the presentation. (I once saw a single briefing interrupted three times by phone calls from the White House.) But the strong advantages to briefings more than offset these risks.

For example, briefings involve all relevant actors in a common activity, allow these actors a much-needed forum for discussion, and create a certain momentum for action.

Most importantly, however, briefings fit the way managers normally operate. Managers rarely sit and read documents for long stretches of time, so why should we ask them to change their management style for us? Instead, we evaluators need to tailor our communications to fit our audience's style, and personal briefings fit very nicely.

To *plan* an effective briefing, limit the audience to a select group, select only the most important information, prepare 6-10 large briefing charts (or overhead transparencies or slides if you prefer), select a team of one presenter, one assistant, and one high-level liaison with the audience, study the audience's interests and likely questions, and practice, practice, practice – exactly as you plan to present the briefing and using a stop watch.

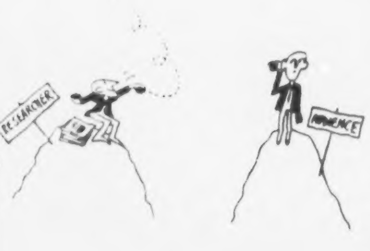
To *conduct* an effective briefing, distribute materials in advance, don't overlook the lighting and seating arrangements, immediately grab the audience's attention, avoid using a microphone or notes, provide individual copies of all briefing, this means that the formal presentation should finish within 20 minutes; the remaining 40 minutes are for general discussion, the first and most important purpose of a briefing.

Other Techniques

All evaluators use written reports and personal briefings to present our findings. But how many of us use less traditional techniques that may be even better at feeding our findings into ongoing decision-making?

I once worked for the Inspector General (IG) of the US Department of Health and Human Services, helping to supervise national-level evaluations. The IG, as part of his normal routine, regularly held one-on-one private lunches with the Secretary and other top agency officials. Naturally we wanted him to discuss our evaluations at these lunches, but it was unrealistic to expect him to carry along a progress report.

So we began providing the IG with one pocket-sized index card for each of the evaluations which might be relevant for his luncheon partner. Because these cards were convenient, the IG looked at them on the way to lunch, and he usually found ways to interject our information into the discussion. As a result, top agency officials routinely discussed the IG's evaluations, not just on special occasions.



Umit Kartoglu

Carefully selected comments at relevant meetings or "chance" hallway encounters can also be useful, and more modern methods include videotaped and computerized evaluation presentations. The US Food and Drug Administration, for example, uses computer graphics to present captivating on-screen slide shows. In addition to allowing professional wipes, fades, and other transitions, this program allows an evaluator to build text charts line by line, make the bars of a bar chart grow, move the lines of a line chart across the screen, and add the slices of a pie one by one. This technique also allows an audience to view the message over and over, and at his or her leisure.

With these different presentation techniques in mind, let's now consider six guiding principles for using these techniques most effectively:

- **Remember that the burden for effectively communicating our findings is on us,** the evaluators, not on our audiences. It is our responsibility to convey our messages, and it is our failure when this does not occur.
- **As Thoreau would say, "Simplify, simplify."** Our typical audience is usually very busy and being pulled in many different directions, so we need to pare ruthlessly to reach our few key points. If these create interest, we can always follow-up with more details.
- **Know our audience.** Do the homework necessary to learn their backgrounds, interests, concerns, plans, pet peeves, etc. Even something as simple as selecting examples from the home region of a key audience member can help maintain interest in a report or briefing.
- **Be action-oriented.** Our audiences are rarely interested in background knowledge; they almost always want information that will help them right now. Often this requires us to offer effective recommendations for actions by taking the time to establish a receptive environment and then carefully develop, present, and follow-up on our advice.
- **Use multiple communication techniques.** Rather than limit ourselves to one technique or another, we can produce several written products, give a personal briefing, develop a ScreenShow presentation, produce a videotape, etc. - all filled with powerful graphics and helpful recommendations.
- **Be aggressive.** Instead of waiting for audiences to request information, we must actively look for chances to present our information. This implies that we will communicate regularly and frequently, appear in person if at all possible, and target multiple reports and briefings to specific audiences and/or issues.

In conclusion, we evaluators can be enormously useful in many different ways, but only if our findings have an impact. How we communicate our findings is often the difference between creating a tiny ripple or making a proper splash.

■

Michael Hendricks, PhD, is an independent consultant specializing in program planning and evaluation. For further information on any of these topics, contact him at the US Embassy, Shanti Path, New Delhi, India 110021.

Radio Enriquillo: An Experience With Self-Evaluation

Radio Enriquillo correspondent records villagers.

by Miriam Camilo, Maria Mata
and Jan Servaes

Radio Enriquillo, one of five Catholic radio stations in the Dominican Republic, was founded in 1977 with the goal of creating a communication channel for local peasant and community groups, to support their development initiatives and encourage their cultural expression. The station is located in the southwest, a poor, sugar-growing region which has traditionally been ignored by the national media and neglected by government programs.

Over the years, Radio Enriquillo has developed a highly participatory working style, involving youth, women, and peasant groups in the identification of themes and content of programs ranging from news, debates, folk music, poetry and drama. Using local correspondents, it often broadcasts "live," and therefore completely unedited, interviews with local people about everyday realities, problems and opinions.

The station consciously strives to support grassroots organizations in their social and economic demands. In fact, observers agree that Radio Enriquillo was instrumental in the tremendous growth in the number of peasant associations and women's groups in the decade after its founding. As one elderly listener once remarked, "The first and only school we have is Radio Enriquillo." Appropriately, the station calls itself "La Amiga del Sur," or Friend of the South. However, because of its clear identification with the poor, those in power have accused it of "agitating" and generating conflict.

Building In Regular Evaluation

From the start, Radio Enriquillo has emphasized the importance of periodic review of its programming and organizational structure. For example, regular meetings are held to examine the station's relationships with local and regional citizen's organizations. In 1982, the station undertook an 18-month research-action project with the assistance of the Latin American Association of Radiophonic Studies (ALER), an Ecuador-based group that specializes in participatory research for community radio stations. The evaluation proved very worthwhile in helping the station explore the source of its popularity and to define ways to better serve the information and educational needs of local people.

Since that time, changes have occurred at the station with the departure of original staff members and the addition of new members. In addition, national elections brought important political changes which had implications for the station and community organizations. As a result, in December 1988, the station staff decided to undertake another comprehensive self-evaluation to examine its achievements, limitations and problems. One of the station's funders, the Netherlands-based Catholic Agency for Development Aid (CEBEMO), also expressed interest in the evaluation and agreed to give it financial support.

Radio Enriquillo's five-member elected council invited the same evaluator from ALER to participate in the study because she could bring continuity with previous evaluation and because ALER had developed an evaluation methodology used in other community radio projects. They also decided that representatives from the station and from the Dutch funding agency should be involved. We, the three authors of this report, were selected as the coordinat-

Gathering Evidence

Five methods were used to collect data:

◆ **Surveys.** Following a training workshop on survey and interview techniques, the local correspondents of Radio Enriquillo carried out a survey with 415 listeners residing in the broadcast area. The sample was selected to include equal representation of men and women, listeners in urban centers as well as rural areas, and those who participated in community organizations as well as those who did not. Separate surveys and interviews were also conducted with organizers of church, educational and development organizations, and with all station staff.

◆ **Community meetings.** Fourteen meetings were held with community organizations in order to explore the radio's relationships with them. More than 200 people participated, representing 51 peasant associations, 30 Christian groups, 7 labor unions, 3 neighborhood groups, and 8 health, human rights, and other organized groups. In addition, five debates were conducted with church and popular education groups that collaborate with Radio Enriquillo. They focused on issues such as whether Radio Enriquillo's programming should give greater emphasis to political analysis or music and culture, or whether the staff's increasing professionalization risked leaving them out of touch with the community.

◆ **Analysis of radio programming.** In group meetings, program producers and other station staff analyzed a sample of the radio programs currently aired. In addition, the station conducted a two-week on-the-air contest, asking listeners to enter a drawing by writing and identifying the programs they liked best. In all, 1,268 letters were received.

◆ **Document analysis.** The station coordinators reviewed existing documents, including letters from listeners, administrative and financial reports, and reports from past evaluations.

◆ **Observation.** The evaluation team observed the daily work of the station, attending staff meetings and examining normal program production operations.

– MC, MM, JS

ing team. The evaluation process began in August 1989 and concluded in March 1990.

A Democratic Process

Since Radio Enriquillo had always emphasized democratic participation in its operations, the station staff were naturally inclined toward a participatory approach to evaluation. Also, everyone agreed that if staff were direcly involved in the determination of evaluation results, they would also be more committed to carrying out the recommendations. Thus the staff was involved at various stages of the evaluation process – selection of objectives, development of the methodology, data collection and analysis. However, the process attempted to balance their in-depth knowledge of the station's operations with our evaluation experience and independent perspective.

Through joint discussion, we decided on a series of evaluation objectives, including those below:

- to re-examine Radio Enriquillo's objectives in light of recent developments;
- to assess the radio station's relations with community groups in the region;
- to examine the coherence and quality of the station's programming and the degree to which it met the information and educational needs of the audience;
- to examine the level of coordination between Radio Enriquillo and other educational, church and development organizations in the region;
- to review Radio Enriquillo's organization, administration, and financial management.

Afterward, we produced a detailed outline identifying indicators for each objective, and types of data collection for gathering evidence.

Sounding Out the Audience

Data collection was carried out with the involvement of station staff and village correspondents between September and November 1989. (See box for a

"Radio Enriquillo makes continual efforts toward improvement, as in this evaluation."

Radio Enriquillo, continued from p. 11

Some standards of data collection, such as a high degree of statistical reliability, could not be met in the self-evaluation.

decription of data collection activities.) We recognized that some standards of data collection, such as a high degree of statistical reliability, could not be met. This was the case, first, because most data was gathered by associates of Radio Enriquillo, rather than by independent observers and, second, because many of them were inexperienced in the protocols of data collection, although we provided some training. However, we agreed that problems with quantitative measurements could be corrected through more in-depth qualitative research, and careful data analysis and interpretation. We also believed that the qualitative data would broaden the findings suggested by the statistical data.

During the next two months, we analyzed data and produced a preliminary report in consultation with the elected council. Extensive discussions with the entire staff of Radio Enriquillo resulted in significant changes to the report. In the final stage, conclusions and a lengthy series of short-, medium- and long-term recommendations were reached. The most significant related to reorienting programming to the particular needs of different groups of listeners, giving more emphasis to daily concerns than to consciousness-raising, and shifting some decision-making power from the church-appointed director to the elected coordinating team. We agreed to follow up on the implementation of recommendations within a year.

Evaluating the Evaluation

Just as the evaluation was an opportunity for Radio Enriquillo staff to learn more about their strengths and weaknesses, so too with the evaluation process itself. In a special final session, we met with the station staff to reflect on the value of the evaluation process.

The staff agreed that the evaluation presented an opportunity to raise issues that normally wouldn't be discussed with community groups, collaborating organizations and among the radio staff itself. They found the experience highly democratic. They also appreciated that we ensured that the evaluation established trust between all parties, was completed in a timely manner, and followed carful methods. For our part, we voiced appreciation for the chance to facilitate an investigation into the station's role in the context of the popular movement.

But the evaluation process was not without problems. For example, the representative from the funding agency was initially viewed with suspicion. It took time for the station staff to trust that he would fully cooperate with the participatory process. Also, taking part in a large-scale evaluation while still carrying out daily tasks required staff members to put in long hours. It was testimony to their commitment that they maintained this schedule throughout the full six months. Finally, several of the debates with collaborating groups exposed Radio Enriquillo staff to harsh criticism, which sometimes went beyond the scope of the evaluation to personal attacks. Such problems were expected in a participatory process, if difficult to remedy.

Conclusion

Why does the community have such trust and support for Radio Enriquillo? "Because the people that work with it are valuable resources." "Because they have the support and acceptance of the people." "Because they make continual efforts toward improvement, as in this evaluation." These were the three answers most frequently cited by respondents during the evaluation. As we see, they are the three basic elements by which an organization like Radio Enriquillo can transcend its limitations, redefine its strategies, and continue pursuing its vision: a team that values people, works to revise its practice, and ensures that the listeners recognize this radio as their own. ■

Miriam Camilo is associated with the Dominican Center of Education Studies in Santo Domingo. Maria Mata works with the Latin American Association of Radiophonic Studies in Quito, Ecuador. Jan Servaes is a Professor of International Communication at the Catholic University of Nijmegen in the Netherlands, and visiting professor at Cornell University in the United States. Together, they coordinated Radio Enriquillo's evaluation. For further information, write Radio Enriquillo, Apartado 99, Tamayo (Bauruco), Dominican Republic.

Who Interprets? Who Decides? Participatory Evaluation in Chile

Rodney Ricks

by Horacio Walker

Through 25 years of working with the poorest sectors of the Chilean population, the Centro de Investigación y Desarrollo de la Educatión (CIDE – Center for Educational Research and Development) has learned that taking the information and experience of beneficiaries into consideration in the design, implementation and evaluation of social programs is more likely to lead to a positive outcome.

CIDE conducts education and training programs that permit poor people in Chile to develop communication, technical, management, and organizational skills. In the course of our work, we have developed participatory practices that allow the beneficiaries to gain control over their environment. These practices have increasingly been incorporated by many of the 300 Chilean non-governmental organizations that control an important share of the non-public resources for development programs.

Cross Purposes

Development projects can point to numerous examples of failure from not taking the "other point of view," or beneficiaries' perspective, into account. In CIDE's experience, this is particularly clear in projects related to agriculture, health, and sexuality, three areas where popular knowledge, myths and beliefs strongly affect the way people understand a problem and behave.

Our educational field work and research demonstrate that the development professional and the beneficiary usually differ in the way each defines a social problem, their motivation for participating in an educational program, and the results they expect. The fundamental difference is rooted in the fact that professionals see educational programs as a formula for changing society; they perceive objectives that go beyond those established for the specific project. The beneficiaries, on the other hand, see projects as a resource and an opportunity to reach the circles of power (professional, institutional, or political) and become part of society as they understand it.

Participatory Evaluation

One of the most sensitive areas of differences in perspective is evaluation. Evaluation involves interpretation of what has occurred in a project and how well it went, and interpretation is inevitably influenced by power relations. That is, some people will have greater power than others to decide what is good and bad about a project, or are in a better position to influence others.

In view of these differences, it is appropriate to create the conditions for smooth communication and cooperative work between professionals and beneficiaries. We view participatory evaluation as a series of activities

> *Beneficiaries see projects as an opportunity to reach the circles of power and become part of society.*

Who Interprets?continued from p. 15

which allow professionals and beneficiaries, together, to share their perspectives about the results of a given intervention in order to collectively reach decisions leading to the improvement of program strategies.

Participatory evaluation presents an opportunity for compiling opinions, view points, conflicts, contradictions, and illustrative examples of how projects operate. It is specifically concerned with questions such as the following. For each of the various actors involved in a project, what does the program represent? How does it operate? How do the people involved describe the problems being addressed? What concepts and theories do they use to classify their experiences? What are the perceived problems and benefits of the project? What modifications should be introduced?

In CIDE, we use the term "illuminate" to suggest how this evaluation approach brings light to issues that aren't always obvious or apparent. As a result, the meaning of the educational process is better understood by the participants. At the same time, the evaluation process gives beneficiaries greater visibility among development professionals and donor agencies. Beneficiaries' identification with and interpretation of the project is communicated through their own daily knowledge and common sense understanding.

The process of discussion generally leads to a consensus on the facts or judgments.

Carrying It Out

Participatory evaluation can be practiced in different degrees. At one extreme, participation is limited to answering questions in semi-structured interviews, whereby a professional qualitatively interprets the beneficiary's opinion, and makes decisions accordingly. Generally, this approach is taken when the purpose of the evaluation is to gain in-depth knowledge of a problem and when it is carried out by an external evaluator who uses the principles and procedures of qualitative evaluation. This approach may be preferred when the evaluation assesses programs of a technical nature, such as seed cultivation methods or certain health care interventions.

At the other extreme, participation consists of soliciting participants' views on the various aspects of project implementation and using group processes which elicit shared values, beliefs, opinions, and knowledge in relation to the specific project. The results should give way to adjustments or modifications in day-to-day program operations. This broader form of participation may be more practical and desirable in programs related to organization, communication and culture.

Participatory approaches emphasize qualitative information and techniques, but not to the exclusion of quantitative ones. Without qualitative data, the evaluation does not know what it is counting. Without quantitative data, evaluation don't know the size of the change.

The evaluation process should fit easily into the normal activity of a project. It should correspond to what participants are already doing, for example, in regular discussion groups, and pose questions in terms they already understand. Seen in this way, participatory evaluation becomes part of and enhances the educational and communication processes, rather than disrupts them.

Simulation Games

CIDE has developed a set of techniques which make it possible to engage beneficiaries in assessing educational programs. The most successful are simulation games, which offer a recreational method for critical analysis of a problem and the search for solutions. Simulations involve board games, role-play, group discussion and other methods designed to elicit research questions, priorities, or qualitative assessment of a project.

For example, we divide beneficiaries into two groups and ask one to brainstorm on what went well in a project, the other to brainstorm on what went wrong. We then ask each group to create a short skit based on their findings, and perform it to the entire group. Afterward, they engage in discussion to analyze why positive or negative outcomes occurred.

Another approach, used in place of survey methods in a project training peasant farmers in accounting procedures, relies on what we call "verbal images." These are obtained by asking a small group of informants to make descriptive or evaluative statements, in their own language, which present a picture of what occurred in a project. For example, "Participants in the education project are mostly people that cannot read or read very little. They are people with scarce

Rodney Ricks

resources." A series of nine or ten statements are then taken to local groups of beneficiaries, who are asked to agree or disagree and amend the statements as they see fit. The process of discussion generally leads to a consensus on the facts or judgments. The final statements from each group are presented verbatim in the final evaluation.

We have developed more than 200 simulation games that address problems such as "myths about sexuality," "family conflicts," "duties and rights of citizens," "grassroots organizations," and "organic vegetable gardening." The use of these techniques has succeeded in promoting the exchange of experiences among groups, group cohesion and collective learning of new concepts.

Possibilities and Limitations

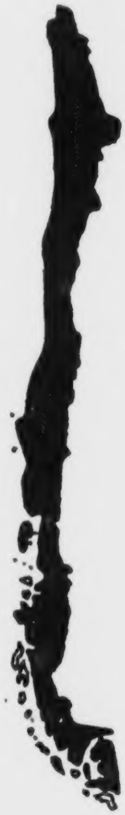
Participatory evaluation is successful in gathering qualitative information in order to arrive at in-depth knowledge about an experience. It can illustrate the progress of a program, beneficiaries' level of participation, and their relations with professionals. It is especially well suited to education projects that aim to change behaviors, attitudes, or cultural norms in relation to a development problem. However, in contrast to standard evaluation which often focuses on individual change in attitudes or behavior, our participatory approaches emphasize changes in group or social norms and practices. For example, a project may try to break down "machismo" attitudes and promote value of equality in male/female relations. The evaluation would attempt to explore how attitudes had shifted and modified practices in the community at large.

Participatory evaluation shows its best potential when applied in small-scale programs. The techniques used and the compilation of information require extensive time and resources, which may be difficult to reproduce on a large-scale basis. Participatory evaluation achieves best results when it is applied to non-formal educational programs. It is also especially effective when applied to programs focusing on innovation and experimentation. For example, it is appropriate in pilot programs that will later be adapted on a large scale. Our use of participatory evaluation in an experimental pre-school education project allowed use to incorporate parents' and children's views in redesigning the program for expansion in many rural areas.

Indiscriminate use of participatory evaluation does not necessarily lead to positive results.

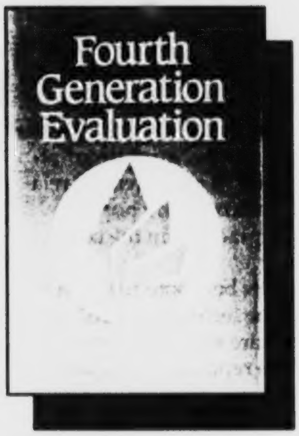
However, in the light of our experience, it is worth pointing out that indiscriminate use does not necessarily lead to positive results. It is not the most appropriate approach for the collection of quantitative or statistical information, such as cost-benefit analysis. There is also little experience with its use in programs at the national government level or on a large scale, or with formal education programs.

Participatory evaluation often puts more emphasis on the educational process than on the final results of a program. This has led to the frequent criticism that the process is valued as the clearest indicator of success, to the neglect of more objective indicators of the achievement of goals. Therefore, it is necessary for participatory evaluators not to lose sight of the goals and to understand how the process relates to the goals.



Horacio Walker, Director of the Latin American Information and Documentation Network for Education, has designed and carried out numerous evaluations of popular education programs. For further information, contact CIDE at Erasmo Escala 1825, Casilla 13608, Santiago 1, Chile. Telephone: (562) 698-6495. Fax: (562) 718-051.

'Truth' in Evaluation: Negotiating Competing Interests



Fourth Generation Evaluation **by Egon G. Guba and Yvonna S. Lincoln. Sage Publications (2111 West Hillcrest Drive, Newbury Park, California 91320, USA). 1989. 294 pp. US $29.95.**

by Randal Joy Thompson

Fourth Generation Evaluation could transform the way evaluation for social programs is carried out worldwide.

Authors Guba and Lincoln, both professors of education at US universities, have long been pursuing an evaluation approach appropriate for social programs, contending that conventional evaluation approaches work best for laboratory-based scientific experiments. Building on their previous model known as "naturalistic inquiry," the fourth generation evaluation model is based on the belief that evaluators should help "stakeholders," or the various actors in a project, construct a shared reality about the project and help them negotiate solutions to issues through a collaborative process. The method is particularly useful for the evaluation of development projects, since their complex political and social nature eludes the controlled, deterministic framework often assumed in standard evaluation approaches.

Beyond Scientific Method

Fourth generation evaluation, according to Guba and Lincoln, is based on the assertion that evaluation goes beyond science – just getting the facts – to include the human, political, social, and cultural context surrounding any human endeavor. It is based on the philosophical belief that social reality is not a "given" to be discovered by a detached scientist, but rather it is "constructed" by stakeholders who are actively involved in the object of their inquiry. These stakeholders – for example, the donors, managers, and beneficiaries of a development project – each have a unique perspective and their various perspectives must be taken together in order to obtain a full and unbiased understanding of the situation at hand.

Evaluation, therefore, must be participatory, with an emphasis on all stakeholders *communicating* their claims, concerns, and issues. Evaluation outcomes are not descriptions of "the way things are" but rather represent meaningful constructions of actors to "make sense of" the situations within which they act. Evaluators, therefore, are not objective outsiders who set out to discover the truth about a situation, to judge its worthiness, and to recommend actions. Rather, they are best characterized as facilitators who help stakeholders construct a shared reality about the project being evaluated, make group judgments about project accomplishments and problems, and negotiate solutions to the major issues which stakeholders themselves identify.

Guba and Lincoln argue that the approach contrasts markedly with those of the past three generations of evaluation, which have often alienated project participants and so have reinforced the non-use of evaluation. According to their schema, first generation evaluation, dating back to the early part of this century, focused on measurement. The evaluator was a technician who measured a variable which the client identified. In second generation evaluation, which took hold after World War I, the evaluator described the patterns of strengths and weaknesses of a particular project or program with respect to certain stated objectives. In the third and current generation of evaluation, predominant since the 1950s and the approach most often used in development projects, the evaluator judges whether project or program objectives have been met.

These prior evaluation methods, the authors argue, all erroneously assumed that information and hence findings and conclusions can be "value-free" and "true and objective," and that evaluators should be relied upon to determine the truth about an activity. For example, they could lead an evaluator to conclude that a project failed because it didn't work according to its original design and objectives, when in reality important developments that suggest new project directions were overlooked.

Some readers may question whether "fourth generation" isn't simply a fancy term for participatory approaches that have been part of international development rhetoric and practice for more than a decade. In fact, participatory methods often do not go far enough in rejecting underlying assumptions about who determines the evaluation outcome. For the first time, Guba and Lincoln offer a comprehensive conceptual framework for arguing why full participation is methodologically sound, and they elaborate on procedures for implementation. Their work also gives those evaluators committed to participatory methods a justification for what they have been doing all along.

Putting It into Practice

Fourth generation evaluation requires that evaluation be carried out in a very different fashion than in the past. Evaluators are selected not only for their technical skills, but even more for their skill in facilitating group processes. They begin the process by interviewing different groups of stakeholders in an open-ended dialogue, allowing them to freely express their claims, concerns, and issues about the project. Evaluators use the views and perceptions of all stakeholders to construct a vision of the project and to determine where consensus exists and where disagreement and problem areas remain. The task for evaluators then is to collect new information to bring light on unresolved issues. At this point, they may rely on traditional quantitative and qualitative data collection methods, such as literature reviews, observation, surveys and interviews, as well as their own experience.

But data gathered is not framed in terms of the evaluator's own findings and recommendations, as in standard evaluations. Rather, it is introduced into a negotiation process in which stakeholders attempt to reach consensus. The negotiations continue until consensus on all issues is achieved, or until certain issues are deemed intractable and are put aside for further negotiation, after more implementation experience may provide greater insights. Therefore, the evaluation process does not stop with a report, but with agreement among stakeholders. Reports are written as case studies which provide readers with a "vicarious experience" of the evaluation process rather than abstract findings and one-sided proclamations. Thus, the evaluation goes beyond the question "Did the project get there?" to ask "Why or why not?" and, even more important, "What are the consequences if it did?"

A Case in Point

In 1990, Creative Associates International, a consulting firm based in Washington, DC, used the fourth generation approach to evaluate USAID's involvement in the Malawi Human Resources and Institutional Development Project. Now in its third year, the project is designed to improve management skills, processes and human resources across a range of Malawian government agencies by 1995. The opening for using the fourth generation approach occurred when officers in the USAID mission in Malawi acknowledged having diverse perceptions and opinions about the project, and invited an open process to examine these differences.

The evaluation team held a series of initial consultations with stakeholders – who were not limited to those suggested by USAID – to determine what they hoped to gain from the evaluation. After research instruments were designed, a series of individual and group interviews were conducted with different groups of stakeholders. In daily meetings, the four evaluation team members pieced together a picture of the project based on the stakeholders' individual and collective perceptions. A final session with all project stakeholders allowed everyone to refine and modify the composite picture of the project, negotiate differences, and come to a common agreement about future directions. At the end, all project stakeholders participated in a two-day retreat to plan next steps from a position of mutual understanding.

An All-Purpose Strategy?

The fourth generation approach is not the right choice for all development project evaluations at all times. The process of frequent consultation and negotiation is necessarily more time-consuming for stakeholders already busy with daily work. It may also work best under certain conditions. As mentioned earlier, it requires an evaluator more skilled with people than at research design and data collection. And, since the approach often stimulates new understandings and new directions, it is probably most useful as a tool for evaluating projects at an early or mid-stage, rather than at project completion.

Furthermore, it assumes that the donor agency is willing to give up control of the evaluation process and work collaboratively. But donor agencies sometimes have an unstated agenda for the evaluation and are not always willing to forego such control. Similarly, the approach presumes sufficient trust between various stakeholders to permit open discussion and dialogue. While fourth generation's emphasis on negotiation can go far toward building such trust, facilitators must be sensitive to the larger power relations in the community or society.

Despite these limitations, with development agencies giving renewed emphasis to democratic processes and initiatives, Guba and Lincoln have presented us with the right strategy for the right time. ■

Randal Joy Thompson is an evaluation specialist currently working in USAID's Center for Development Information and Evaluation. For further information, contact her at USAID, PPC/CDIE/PPE, Room 217 B, SA-18, Washington, DC 20523, USA.

ALAIC: Back Again

The Latin American Communication Researchers Association, known by its Spanish acronym ALAIC, was revived in 1989 after lying dormant for nearly a decade. ALAIC is renewing efforts to bring together communication researchers throughout the continent to examine the North-South communication issues and to press for national communication policies and creation of local news agencies.

Originally formed in 1978, ALAIC mobilized researchers in Latin American and Caribbean countries and created several communication research centers. But the association came upon hard times amid the economic crisis that gripped Latin American educational institutions during the 1980s. In addition, dramatic political changes called for a redefinition of original goals.

ALAIC plans to sponsor the first Latin American Congress of Communication Researchers and to send delegations to international communication meetings. The *ALAIC Bulletin*, published twice a year, disseminates ideas and trends in communication research in Latin America.

For more information contact: Jose Marques de Melo, School of Communications and Arts, University of Sao Paulo, Av. Prof. Lucio Martins, Rodriques, 443, 05508 Cidade Universitaria, Sao Paulo, Brazil.

Resources for Evaluation

Three books distributed by Private Agencies Collaborating Together (PACT) are designed to overcome the myth that only an "evaluation specialist" can conduct quality evaluation. The ***Evaluation Sourcebook for Private and Voluntary Organizations*** (Cost: US $6), ***Participatory Evaluation: A User's Guide*** ($10) and ***Demystifying Evaluation*** ($5) are all directed at development field workers or trainers. Each is a practical guide to designing an evaluation, selecting research tools, and implementing strategies. Contact: PACT, 777 United Nations Plaza, New York, NY 10017, USA. Tel.: (212) 697-6222. Fax: (212) 692-9748.

Although more than 10 years old, **"Evaluation and Research in the Planning, Development and Support of Media-based Education,"** by John K. Mayo and Robert Hornick, remains a definitive paper on the subject. Aimed at evaluation specialists, the 60-page paper identifies the major research and evaluation questions that accompany the five phases of educational media programs – policy definition, planning, build-up, maintenance, and review. Available from the International Institute for Educational Planning, 7-9 rue Eugene Delacroix, Paris 75116, France. Telephone: (33-1) 45-04-2822. Fax: (33) 1-45-67-1690.

A Manual for Culturally Adapted Market Research in the Development Process by T. Scarlett Epstein uses a question-and-answer format to lay out basic arguments for research that explores users' knowledge, needs and preferences, and relies mainly on trained indigenous investigators. The monograph also outlines a step-by-step approach for developing a market research plan. Available from RWAL Publications, Lloyds Bank Chambers, 15 Devonshire Road, Bexhill-on-Sea, East Sussex TN40 1AH, UK. Telephone: (44-424) 219-318. Fax: (44-424) 730-291.

"Evaluation for HIV/AIDS Prevention Programs," a new 12-page guide intended for use by community-based organizations, explains the purpose, types and methods of evaluation and outlines a sample evaluation plan. Available free of charge from the US Conference of Mayors, 1620 Eye St., NW, Washington, DC 20006, USA. Telephone: (202) 293-7330. Fax: (202) 293-2352.

In 1988, the Center for Community Services in the Philippines conducted a baseline survey of 30 rural villages to explore interrelated problems of rural poverty. Based on this experience, it published ***It's Our Move, Too! A Participatory Research Experience in Quezon.*** The large-format, user-friendly book explains the basic concepts of participatory research, and describes techniques, problems and "important things to remember" when putting theminto practice. Available from the Center for Community Services, Ateneo de Manila University, Loyola Heights, Quezon City, Philippines.

The **International Participatory Research Network** links researchers and development workers who involve communities in the process of investigating their own situation and generating new knowledge. The network has regional contacts in Africa, East and South Asia, South-East Asia, Latin America, the Caribbean, North America, Southern Europe and the United Kingdom. One of the more active regional groups is the Society for Participatory Research in Asia, which carries out such activities as a census of homeless people in Bombay and action research among women workers in Hong Kong. To get in touch with the representative in your region, contact: PRIA, 45 Sainik Farm, Khanpur, New Delhi, 110 062, India. Telephone: 650-1126.

Those involved in development education – the term that refers to the education of Westerners about Third World development problems and issues – will find a helpful resource in ***How Are We Doing? A Framework for Evaluating Development Programs*** and a companion volume, ***So ... You Want to Evaluate?*** The 125-page manual guides the educator through seven stages of evaluation, with dozens of examples drawn from existing development education programs. The 26-page companion explains to newcomers how evaluation can help their programs. Available for US $8.50 and $5, respectively, from Interaction, 200 Park Avenue South, New York, NY 10003, USA. Telephone: (212) 777-8210.

Clearinghouse on Development Communication

Publications and Services

Development Communication Report (DCR)

Back issues (1988-1990). Price: $2.50 each, free to readers from developing countries. Please indicate the number of copies:

___ No. 71: Communication and Healthy Lifestyles
___ No. 70: Communicating with Women
___ No. 69: Technology for Basic Education
___ No. 68: Adult Literacy
___ No. 67: Information Technology
___ No. 66: Training through Media
___ No. 65: Environmental Communication
___ No. 64: Local Radio
___ No. 63: Distance Education

DCR, Special Editions in French and Spanish

Price: $2.50 each, free to readers from developing countries. Please specify the language:
___ Spanish ___ French

Please indicate number of copies:

___ Distance Education
___ Local Radio
___ Environmental Communication
___ Health Communication
___ Communicating with Women (in French only)

Special Publications

Price: $5.00, free to readers from developing countries. Please indicate number of copies:

___ Bibliography on Distance Education
___ Directory of Training and Study Programs in Development Communication

Information Requests

The Clearinghouse responds to individual requests for information, bibliographic references, and referrals on development communication topics. This service is free to readers in developing countries; others will be charged the cost of photocopies ($.10 per page) and postage. Direct consultation can be made by visiting the library. The main themes of the collection are:

- Communication Technologies: Broadcasting, Mass Media, Folk Media, Print Media, Informal Media, Telecommunications, Information Technology
- Communication practice related to Population, Nutrition, Child and Maternal Health, AIDS, Substance Abuse, Agriculture, Environment and Women
- Educational Technology, including Distance Education, Interactive Radio Instruction, and Computer-Assisted Learning.

Use the space below or a separate sheet of paper to outline an information request. Please specify the development field as well as the communication medium, if possible. ***Example:*** I would like materials on the use television for family planning programs and the names of organizations that conduct such work.

Enclose this order form with payment in the full amount, except for information requests, which will be billed. Make checks payable to the ***Clearinghouse on Development Communication.*** *Mail to CDC, 1815 N. Fort Myer Drive, Suite 600, Arlington, Virginia 22209, USA.*

Name: ____________________
Address: ____________________
Country: ____________________
Telephone: ____________________ Fax: ____________________

What's New, What's Coming

Call for Papers on Indigenous Communication

The Center for Indigenous Knowledge for Agriculture and Rural Communication at Iowa State University invites contributions of scholarly papers or references to traditional means of communicating indigenous knowledge on technical issues (e.g., land use, animal husbandry or forest protection), as well as externally generated knowledge.

The papers will be used to compile an annotated bibliography and a selected anthology on this topic. Each will list materials on folk media, indigenous organizations, indigenous forms of instruction, traditional forms of record-keeping, and social networks. The bibliography will also cover materials on how indigenous information channels operate, how people learn and teach indigenous information, who is involved in such communication, and how it is organized. One graduate student has made a special request for materials on indigenous knowledge systems related to livestock and animal management, breeding and feeding.

For more information, contact: Paul Mundy, Department of Agricultural Journalism, University of Wisconsin-Madison, WI 53706, USA. Telephone: (608) 262-1898.

Award

The Canadian Commission for UNESCO invites nominations for the biannual **McLuhan Teleglobe Canada Award.** Created in memory of the late communication scholar Marshall McLuhan, the award recognizes research or action that has contributed to a better understanding of the influence of communication media and technology on society, especially on cultural, artistic, and scientific activities. The award winner will receive $50,000 (Canadian). Submit nominations by April 30, 1991, or soon after, accompanied by a biographical statement, a list of accomplishments and supporting documents. Contact: Canadian Commission for UNESCO, 99 Metcalfe Street, PO Box 1047, Ottowa, Canada K1P 5V8.

Courses

From May through August, Cornell University will hold five intensive communication courses, open to development officials and project leaders. They include: Participatory Research and Communication for Development (May 30 -June 20); Video Communication I (May 30 - June 20) and II (June 24 - August 3); Communication Planning and Strategy (July 10 - August 6); and Communication for Social Change (June 24 - August 3). Fees are US $1,055 for three-week courses, $2,200 for the six-week course. Contact: Cornell University, Department of Communication, 317A Kennedy Hall, Ithaca, New York 14853, USA. Telephone: (607) 255-6500. Fax: (607) 255-7905.

Iowa State University offers an annual, six-week course on **Agricultural Communication and Media Strategies**. This year's course, held June 10 – July 19, 1991, will cover basic communication concepts and offer hands-on production training in video, photography, print, radio, and posters. Participants may receive sponsorship from USAID, World Bank, FAO or their own governments. Cost: $4,215, not including living expenses. Contact: USDA/OICD/DR/MCD, Room 3116, South Building, Washington, DC 20250, USA. Telephone: (202) 245-5836. Fax: (202) 245-5960.

Information Networks

The Women, Environment and Development Network was launched in 1989 to document and legitimize women's indigenous knowledge about environmental protection, especially in Africa. Researchers and documentation centers in Canada, Kenya and Senegal will be linked by computer for the purposes of sharing information and resources related to women and environment. The network will develop strategies for disseminating findings and recommendations to policy-makers. Contact: Rosemary Jommo, WEDNET Coordinator, Environment Liaison Center, PO Box 72461, Nairobi, Kenya.

In 1988, a national **Health Education Network** was established in Kenya with the goal of "promoting positive health behavior through appropriate information, education, and communication materials and techniques." Among other activities, the network publishes an 8-page newsletter and is sponsoring a competition inviting primary school children to express health messages in posters or poetry. It has established a resource center and welcomes samples of print and audiovisual materials and write-ups of health education experiences that would be relevant to Kenya. Contact: HEN, PO Box 30125, Nairobi, Kenya. Telephone: 50-4661. Telex: 23254 AMREF, Kenya.

Resources

Publishing Educational Materials in Developing Countries, by John MacPherson with Douglas Pearce, grew out of a 1989 workshop that brought together curriculum developers, textbook writers and editors, reachers and commercial publishers to identify problems as well as solutions to textbook publishing in developing countries. The book explores cost-effective ways to produce educational materials, tracing steps from curriculum planning through final distribution and storage of textbooks. Available for £ 4.95 from Intermediate Technology Publications, 103-105 Southampton Row, London WC1B 4HH, UK. Telephone: (441) 436-9761. Fax: (441) 436-2013. Telex: 268312 Wecom G. Attn. Intec.

More Useful Evaluation, continued from p. 24

draw conclusions about project success, and even to suggest broad social change. Of course, project managers need information on how they are doing, and it takes a long time to see society-wide changes in fertility or infant mortality rates, or other indicators. But sales figures are the earliest, easiest, and possibly most misleading indicator of communication impact. Sales figures tell us nothing about people's actual and correct use of the product, about continued use, or about adoption of other good health practices.

Furthermore, social marketing typically divides the consumer population into broad categories, even though there may be substantial differences in lifestyle, beliefs, and socio-economic characteristics within each category. If we don't know who these people are, what can we conclude about social marketing effectiveness when a campaign produces 1.3 new contraceptive users each day and loses 1.0 the next day?

The challenge is to identify consumers who present different problems and track their behavior over time, adjusting the communication to their needs. Monitoring and dispersed, small informal studies of selected groups are indispensable for a better understanding of campaign success or failure.

◆ ***Cost-effectiveness analysis.*** Reports of health communication projects in developing countries find the mass media more "cost effective" than face-to-face communication of village workers in teaching mothers oral rehydration therapy (ORT). This may be true for one-time adoption of ORT. But it certainly may not be true for lasting behavioral change. The economics of communication impact are false without knowing the cost-per-unit of long-term change.

There is no easy solution. Studying the same people over 10 years or more would provide insights, but would be highly expensive. And it is difficult to know in a social setting with many types of communication which media cause which changes in behavior. We could broaden our focus from studying cause-effect relationships to studying communication as a catalyst for community change. Although this is also a long-term process, it would be a less costly way to document changes in community services, activities, and norms before, during and after a communication program.

◆ ***Reporting.*** The UNICEF study also found that, on average, evaluation reports devote only three percent of their text to recommendations on "what to do next" and "how to do it." The remaining 97 percent focuses on findings. Researchers may hide behind findings, fearing to risk their reputations. But decision makers, both at the project and policy level, care less about findings and more about the actions to take based on them. Evaluation work plans can require reports to make recommendations, each organized in a separate chapter, using findings to support them, not hide them.

◆ ***Dissemination of results.*** Evaluation reports are usually written for donor agencies and academic journals, and tend to be long and jargon-filled. This practically guarantees that the data won't be used. Projects should budget resources for an aggressive dissemination plan that identifies potential users of evaluation results at different levels, and tailors research messages to the interests of each group. The information should be conveyed journalistically, not technically, and through all forms of written, audio-visual and interpersonal communication.

◆ ***Evaluation training.*** Training programs tend to pluck host-country researchers out of their institutions, send them to courses in the United States or Europe, impart the advanced knowledge, and return them home where little has changed but their individual experience. The impact of training tends to fade rapidly.

One solution is provide system-wide training at each selected research institutions. Taking an evaluation process from beginning to end, training is given to all project staff at all levels for their specific jobs. Special emphasis should be given to the field worker, who intervenes between the intentions of the questions being asked and the intentions of the response given – the most fragile point of the research process. No study is better than the people who carry it out in the field.

The problems are human. The solutions are too.

■

Gerald Hursh-César is Vice-President of Intercultural Communication, Inc. For further information, write him at Suite D-102, 2440 Virginia Avenue, NW, Washington, DC 20037, USA.

The idea that a multiple information-giving strategy lends itself to a single information-getting assessment is wishful thinking.

Eight Ways to Make Communication Evaluation More Useful

Maria Elena LaRue

by Gerald Hursh-César

Although there is growing demand for communication to support development programs, nations are accepting communication processes and products more on faith than on evidence that they work. The usual answer to this problem is to carry out more and better evaluations. Yet, more often than not, communication research and evaluation have proven unproductive and wasteful. Outlined below are some common problems and suggested ways we can begin to overcome them.

◆ ***Large quantitative surveys.*** Large surveys usually use many field workers and rely on structured, checklist-type questions, asked in the same way in the same sequence of all people. So in a brief time, many people in many places can be asked many questions on many topics. By this formula, the data often lack depth. An even larger danger is going into unfamiliar settings with survey formulas that have worked elsewhere. For example, nearly identical family planning questionnaires were used recently in Indonesia, Jordan, Egypt, Kenya and Nigeria. This tidy world exists only on paper.

We may be forgetting that different cultures exist across nations, and among districts and villages in the same nation. We may be forgetting lessons painfully learned over many years about the need to take time to develop measures and instruments that are sensitive and comprehensible in the context of each culture. We should return to "pretesting" our full evaluation approach. Pretesting is more than learning how to translate questions. It is a "dress rehearsal" of the full logistics, sampling, measurements, and data analysis activities under conditions expected for the main study. Full pre-testing is a formal mini-study.

◆ ***Small qualitative studies.*** Large surveys are costly, often complex and time-consuming, and frequently too late and too superficial to help project decision making. As a result, many project managers have turned to simpler, faster, cheaper qualitative methods, often referred to as "rapid assessment procedures."

Such methods – focus group discussions, key informants, community observation, informal interviewing – usually produce more in-depth knowledge of small groups of people. They are less formal and structured than surveys and more impressionistic. They are now becoming the dominant mode of evaluation. The danger is that the results may be unique to the personalities and skills of each individual researcher or unique to the subgroup. However, evaluators often generalize the data from these unique conditions to large, diverse, and unstudied populations.

But we needn't make false choices between large quantitative surveys and rapid assessments, as though they were mutually exclusive alternatives. The idea that a multiple information-giving strategy lends itself to a single information-getting assessment is wishful thinking. Each approach has different objectives and different strengths. Evaluations should combine different methods for different parts of the information problem and use the data from each to complement the other – adding deeper insights to survey generalizations and greater breadth to small group impressions.

◆ ***The evaluator.*** The standard evaluation brings in an outside evaluator, who has minimal contact with project staff throughout the process and submits a final report that often does not reflect understanding of the project. Dissatisfaction with this approach led some practitioners, especially in Latin America, to adopt participatory methods involving project beneficiaries in evaluation.

But there is also need for closer partnerships between evaluators and ministry administrators, program staff and other local technical experts. A recent evaluation of 41 UNICEF field studies of child survival interventions found that the best predictor of a good study is the active partnership of program decision makers in planning, training, analysis and recommendations. Sitting together at the planning table ensures that all partners share understanding and expectations. Sharing drafts of approaches, questionnaires and analyses assures that all perspectives are included and factual errors avoided. Finally, working together is the surest way to develop practical, affordable, and workable recommendations.

◆ ***Sales levels.*** Social marketing projects often use the volume of pharmacy sales to

(continued on p. 23)

Development Communication Report

No. 73
1991/2

To Our Readers

This *DCR* is dedicated to you. It features articles that have been contributed by readers over recent months. Although we purposely departed from our usual practice of focusing on a single theme, we found that many articles center around the themes of participation, community empowerment, and locally initiated, grassroots communication approaches. This is consistent with preferences expressed by most respondents in the recent DCR survey. (See report on survey results, p. 16).

We invite contributions to all *DCRs* – case studies, field research reports, project news or commentary – especially from practitioners with first-hand experience of communication programs and technologies in developing countries. The theme of the next edition is indigenous knowledge and traditional media; future themes will be listed in *DCR* no. 74. Let us hear from you!

– ***The Editor***

Inside this issue ...

[illegible]

Community Communication

Getting Beyond Information Overflow, Communication Undernourishment

by Manfred Oepen

> *"Broadcasting has to be changed from a means of distribution to a means of communication. What a wonderful apparatus broadcasting could be if it would only receive as well as transmit, make the recipient speak instead of just listen, relate him to others instead of isolating him from them."*
>
> ***– Bertold Brecht, Der Rundfunk als Kommunikationsapparat, 1932***

Nearly 60 years after Brecht wrote this statement and more than 7,500 kilometers away from Germany, his vision has been put into practice: a small TV station in the Kheda district of Northwest India regularly broadcasts news

(continued on p. 2)

Participatory Radio in Bolivia

by Jose Luis Aguirre Alvis and Eric A. Abbott

Although there is wide support among communicators for participatory approaches, there has been much less agreement about what the term really means, and how one can determine whether a project is participatory or not. The goal of our study was to develop a broad and inclusive methodology for examining participatory aspects of radio, and then to use that methodology to evaluate a participatory radio station operating in the Amazon region of Bolivia. While other evaluations of participatory approaches emphasize single aspects, such as the philosophy or method used, content, or involvement by local people, the present approach attempted to examine participation across three dimensions:

◆ ***Who participates?*** Many communication models focus on the

(continued on p. 5)

Development Communication Report

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 7,000. The newsletter is available free of charge to readers in the developing world and at a charge of $10.00 per year to readers in industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Institute for International Research, in association with Creative Associates International and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in the *Development Communication Report* are those of the authors and not necessarily of its sponsors. Original material in the Report may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication
1815 North Fort Myer Drive, Suite 600
Arlington, VA 22209 USA
Telephone: (703) 527-5546
Fax: (703) 527-4661

Michael Laflin, Director
Kathleen Selvaggio, Editor
Valerie Lamont, Information Specialist
Earlington McLetchie, Librarian

Development Communication Report is produced using desktop publishing under A.I.D. contract DR-5831-Z-00-8028-00.

Community Communication, continued from p. 1

on local development and social problems or conflicts that are discussed by the village groups and local authorities. Several times a week, the popular programs are widely viewed in a broadcast area of about 400 villages, most of which have communal TV sets.

Since 1976, the overall objective of this central government project is to instigate a dialogue among the otherwise passive viewers, make them speak about burning issues in rural development and social change and relate them to decision-makers at "higher levels." Due to its careful commitment to community self-reliance and opposition to social and economic oppression, Kheda TV has successfully "lobbied from below" for social changes by giving people a voice who were not heard before.

The Rule

True, Kheda TV is an exception, in India and elsewhere. As a rule, there is an unshakable belief that centrally programmed media will solve social and development problems, be they "national integration," "literacy," "rural development," "economic growth" or "democratization." Bad evaluation results, analyses of the negative effects of such media, and criticism of underlying media imperialism have not been able to change this conviction. Hence, what Brecht said long ago about broadcasting could be applied to most media used in communication for development. The reasons for media's shortcomings are not technical, but political and economic in nature. Whether radio and TV in the 1960s, or rural satellites and "barefoot microchips" in the 1980s, available media technologies are rarely used to stimulate dialogue among non-privileged sectors, due to power and profit interests of ruling elites.

The mass-mediated rush to the minds and money of people in the North and South – not to forget the East, these days – even seems to increase over the years. This does not make it easier to use such media systems for liberating development policies and programs. More information and more centrally programmed media deprive the individual of options for deciding courses of action and in developing accountability for his or her decisions and actions. It also misleads development and media experts into a widely shared assumption: that information is the "missing link" between a problem and a solution. But even the most sophisticated information strategy will not solve a problem if economic resources, social organization or political leverage on the side of the people concerned is missing.

The Exceptions

True, the Kheda TV project is an exception to the rule, but it does not stand alone. In the Philippines, **People in Communication** is a network of non-government organizations and media organizations integrating community organizing and development support communication. Farmers, fishermen or other self-help groups use locally available community media, from street theater to radio, to identify their problems, then present and discuss the issues in their community. Next, they mobilize and organize problem-solving self-help action and lobby bottom up on their own behalf with political and economic decision makers, legislators or mediators like the church.

Similarly, the Indonesian **Society for Pesantren and Community Development** in cooperation with rural Islamic boarding schools (*pesantren*) applies a culturally adapted "pedagogy of liberation" and various community media to increase the "bargaining power" of cooperatives and self-help groups in efforts toward community development and democratization. In a country characterized by centralized media policies, farmers for the first time created radio for farmers, producing regional programs that highlighted local problems and local solutions. Teenagers regained their self-esteem previously lost in unemployment when they engaged in theater work and mobilized for vocational training. Scavengers portrayed their downtrodden situation of social discrimination, economic exploitation and legal insecurity through a videotape, later presented to development officials.

Video as a tool for "experts only" is also demystified by the **Self-Employed Women's Association** (SEWA) in India. SEWA trains ordinary street vendors or women workers in video techniques so that they can produce their own programs. The programs are then used to increase self-employed women's visibility in social and legal spheres, for example in organizing credit unions and lobbying for their rights.

In Chile, a media network known as ECO pursues its goal of *communicación popular* by making people senders of messages who had only been receivers before. By using video and popular press in cooperation with seasonal workers, trade union activists or women organizers, ECO attempts to balance the vertical organization of mass media with horizontal exchange of experience and social mobilization. A network of rural radio stations in Bolivia functions in a similar way by promoting cultural identity and a pedagogy of liberation among its listeners. The latter are mostly peasants and miners who usually do not have other sources of information relevant to bringing about transformation of their generally very exploitative economic environment.

Common Links

The above-stated examples, together with 10 other case studies, were presented at a series of three seminars sponsored by the German Society for International Development from 1986 to 1990. The seminars brought together more than 60 experts from mass media and community media, government and non-government organizations, to analyze what made development communication interventions efficient and successful. The case studies were selected as alternatives to standard media support projects, which normally might provide studio equipment or train journalists. Their goal is not to disseminate information *for* passive target groups, but rather to facilitate communition *with* and *by* those people who confront structural poverty, unequal distribution, unsatisfied basic needs and insecure subsistence.

Although mass media have a part to play in these strategies, the complex and risk-filled processes of socio-economic change in the Third World cannot occur without interpersonal communication in groups, networks, and communities. The media used in the case studies – from TV to theater – clearly blur the distinctions between modern, traditional or group media. These categories usually assume that modern media are associated with decreasing public control and increasing technical complexity or, conversely, that the simpler the media, the more participatory. Instead, in problem-oriented communication with or by the people, access to and participation in the media is more important than media selection. This approach is often labeled "community communication."

Martha Stuart Communications

Video SEWA plays back a video to villagers in Davedholera, India. Discussion and comment follow the community viewing, allowing villagers input into the final version .

From the experiences shared in the seminars, several critical elements of this approach were derived:

- The entry point of the communication strategy is the specific realities and problems of local groups, which are often rooted in rural subsistence, poverty and lack of organizational capacity.
- The media are integrated with ongoing development activities and are not projects in their own right.
- Media produced with and by the people stresses the principles of access, participation and self-management.
- Horizontal communication processes motivate people and mobilize them to change behavior. These processes occur through communication networks at the local level and between local groups and NGOs, mass media, and research institutions.
- The main criteria of success of communication interventions are the degree of participation and action by non-privileged groups in decision-making

(continued on p. 4)

Community Communication, continued from p. 3

The goal is not to disseminate information for passive target groups, but rather to facilitate communition with and by people.

processes at the community and national level.

Why Not Utopia?

Communication in line with the above criteria focuses on strengthening the bargaining capacities of poor and rural people, who are often virtually powerless. Since powerlessness suggests lack of organizational skills, media supporting development should facilitate "communication competence," i.e., the ability to reflect upon and articulate the key factors of one's environment. This is a prerequisite for social and political competence, that is, the capacity to participate in and share a given society's decision-making processes and wealth in harmony or in peaceful conflict with others. The long-term goal is peaceful transformation of socio-economic power relations, and the creation of a democratic and pluralistic society.

In such an approach, community media clearly have some advantages in comparison with the usual dichotomy of "electronic" vs. "interpersonal" media, since they

- facilitate and link networks on different levels of society (community, intermediary and decision-making levels);
- bring together media producers and development activists through a shared sociopolitical commitment instead of segregating them sectorally;
- allow people concerned to define media and development goals in a democratic and participatory way and to engage in self-determined, cooperative action;
- contribute to democratic values such as individual emancipation, civil rights, public control of political and economic power, and pluralism; and
- provide an efficient mechanism for information-seeking and feedback, which are indispensable in complex planning and monitoring processes of development.

The question whether community media can help solve the problems associated with social injustice and the abuse of power cannot be answered for sure, but maybe another Brecht quotation may hold some insight: "If you should consider this utopian, I ask you to think about the reasons why it is utopian." ■

Manfred Oepen formerly worked with the Friedrich-Naumann Foundation in Indonesia and is currently a private consultant based in Germany. For further information, contact him at Kleine Twiete 3, 3002 Wedemark 2, Germany. Telephone and fax: (49-5130) 79-803.

Martha Stuart Communications

Leelaban, an illiterate vegetable vendor (front), and Santokben, a carpenter (behind), learned to use a video camera at a Video SEWA workshop. Leelaban now works full-time for Video SEWA.

Participatory Radio, continued from p. 1

relationship between the change agent or agency and the recipients. In actuality, however, most communication projects find themselves enmeshed in a network of organizations and actors at the regional, national, or international level. Therefore, it is necessary to explore which groups were responsible for making the project function or were invited to participate – or were deliberately excluded. It is important to distinguish between a project created by an outside donor agency and then offered to a community, and one in which the local community itself or a regional agency played a key role in initiating and defining project goals and activities.

> *Lack of direct participation by listeners in decision-making . . . does not necessarily mean that a radio station is not participatory.*

◆ ***At what stage do they participate?*** Rather than focus attention only on participation at the time of delivery of services or information to local farmers, pregnant women, etc., it is also important to examine the level of participation at several project stages: *origination* (where did the idea for the project come from?); decisions about *organizing*, or determining the structure, objectives and strategies of the project; *planning* project activities; *producing* materials or programs; *delivery* of services; and contributions to the long-term *sustainability* of the project.

◆ ***What is the quality of participation?*** Did the various groups or individuals have access to project planning, decision-making and implementation activities? Which of those that had the opportunity to join in the dialogue actually did so? And of those that did, what was the extent of their participation? This would distinguish between token representation in decision-making processes, and actual initiative and control. It is also important to examine groups or organizations that might have been excluded from the project or might have opposed it.

The River-Radio Project

The project, Radio San Miguel, is located in the city of Riberalta, Department of Beni, on a tributary of the Amazon River in northern Bolivia. It consists of a relatively low-powered (1 kilowatt) short-wave radio station broadcasting between 16 and 17 hours per day to 75,000 Spanish-speaking residents, 45,000 of whom live in hundreds of small villages along rivers in the area. There are few roads and no electricity or phone service outside the larger cities. Most people were attracted to the area by employment opportunities in rubber and nut plantations run by large landowners. These landowners have opposed the creation and operation of the radio station, especially since it has spoken in favor of worker organization. Many of them do not permit workers to have radios either on the job or in company-owned housing areas.

The radio station consists of a production staff generating local programming, and four two-person field teams that travel by canoe along the rivers to villages. In the villages, the field teams work alongside farmers and townspeople, carrying out community development work. They also gather material for broadcasts and bring back ideas for future programs. A key activity is the identification of popular reporters who are later brought to the station for 15 days of training on how to collect information from their communities for radio programs. More than 120 community correspondents have been identified and trained thus far.

Major Findings

In order to study levels of participation in the radio project, personal interviews were conducted with listeners, community organizations, station personnel, donor organizations, and other agencies and institutions that provided guidance or support for the station's activities. During these interviews, direct observation of ongoing activities was also possible. Finally, reports and other documents related to the radio project were examined.

Participants: The first column in Table 1 shows the large number of organizations that became involved in the participatory radio project. After a local priest initiated the idea for creating Radio San Miguel in 1968, a number of church, development and education-related groups at various levels became involved. Originally established for evangelizing purposes, it then evolved toward educational objectives with the assistance of ERBOL (Educational Radio Association of Bolivia) and teacher groups, and finally toward its participatory rural development orientation when it was formally taken over by EMEIR's (Mobile Teams for Integral Rural Development) director in 1986. Yet also important is which groups were not involved. Landowners, for example, have been excluded from the entire process. In addition, the military played an especially episodic role, taking over the station in 1980 and operating it for two years before returning it to the control of the Bishop of Pando.

Stages: The middle column of Table 1 shows the stages of involvement of various organizations and individuals over time. These results indicate that international donor agencies, although crucial to the project's continued survival, have not been active across the life of the project. Bolivian and Latin American radiophonic education organizations, on the other hand, have played a role in generating ideas for how the station is organized, and have

(continued on p. 7)

Table 1: Participation in Radio San Miguel

Organizations Involved	Stages			Quality
International				
MISEREOR (West German Center for Development Assistance)		Organizing	Sustaining	Key financial role in recent years; makes suggestions for rural involvement
National/Regional Radio				
ALER (Latin American Association of Radiophic Education)		Organizing	Production	Supplies radio programs; source of popular reporters concept
ERBOL (Educational Radio of Bolivia)		Organizing	Production	Supplies radio programs; passed on popular reporters concept; conducts training
CCP (Center of Popular Communication)				Supplies radio program
Catholic Church				
CEB/CEE (Episcopal Bolivian Conference; Episcopal Commission on Education)	Origin			Provided link to funding to create station
Bishop of Pando (Vicariate)	Origin	Organizing	Sustaining	Key role in developing organizational structure and overall philosophy for station; hires station director; provides funds to station
Maryknoll Missionary	Origin	Organizing	Production	First to propose idea for station in 1968; developed initial organization plan; less active since 1982
Institute of Rural Evangelization			Production	Supplies religious programs for station
Government				
Military government	Organizing	Planning	Production	In 1980, military took over station, jailed Maryknoll priest, and cut participatory activities until 1982
Local				
EMEIR (Mobile Teams for Integral Rural Development)	Organizing	Planning		Key role in establishing River Canoe approach to visit communities; EMEIR director became station director in 1986
Pando Rural Teachers Organization		Production		Produces rural education programs for station
Radio San Miguel employees	Organizing	Planning	Production	Lost battle concerning station approach to EMEIR; many staff fired; replacement implemented field canoe visits and other participatory activities; staff plans specific programs
Radio San Miguel popular reporters			Production	Help select content for and produce programs
Landowners	No direct involvement			Landowners opposed creation of station; they are excluded from station activities.
Farmers Local Cooperative	Organizing			Member of coordination committee
Local Office Holders			Production	Appear on weekly program "Political Prism"
Listeners		Production	Sustaining	Defended station on one occasion when it was attacked as being pro-communist; supply 150 messages per week for broadcast

Participatory Radio, continued from p. 5

supplied radio programs to the station.

The Catholic Church has been active in every decision-making project stage. It played a key role in the origin and organization of Radio San Miguel, and it has also provided links to financial resources. Although the actual individuals changed over time due to imprisonment, death and replacements, the Church itself has supplied the long-term institutional support necessary for the project to continue.

Local residents and organizations are involved in the production of radio messages, but they have not played a direct role in most other project stages. Although not included formally in discussions affecting programming, financial resources or how the station might sustain its activities over time, listeners helped the station continue by protesting when others attacked it. There has been no major change across time in the type or extent of participation by rural residents.

Quality: From the third column in Table 1, it is possible to examine the quality of involvement of various entities. No one player has shaped how Radio San Miguel operates. The church has maintained the most powerful role, but others have played powerful roles intermittently. The military intervened suddenly and decisively, taking over the station and imprisoning the priest who founded the station. After 1982, the Bishop regained control, but the Maryknoll priest never was prominent again in station operations. The donor has emerged as an important financial player.

Local residents supply personal messages for radio and defend the station when it is attacked, but they do not have a direct voice in decision-making or in shaping the station's future. Station personnel point out that because of their frequent visits to the field, they know what people want. Field interviews confirmed that rural residents do listen to the station and value it.

Radio station personnel themselves played an unexpected role. When a more participatory approach was introduced, it was opposed by many on the radio staff, who thought that it would lead to unprofessional content on the air. Many of the staff were radio educators who came from urban backgrounds. Those who opposed the participatory policy eventually were replaced. Thus, their attempt to establish "professional" standards for participatory radio was unsuccessful.

Conclusions

Two general conclusions emerged from the study. First, levels of participation by the many actors in the radio project varied across time. Their influence at different project stages may be critical to how participatory a station is or remains. Agencies that provide a long-term institutional base, such as the Catholic Church, play the most critical role in creating and maintaining a radio station that is participatory in orientation.

Second, lack of direct participation by radio listeners in decision-making on the station's objectives, programming or financial base does not necessarily mean that a radio station is not participatory in its programming or does not serve listener interest. Listener protests of criticisms of Radio San Miguel, the continuing contribution of personal announcements, news, and local music by listeners, and positive listener comments during our field interviews indicate that there is local participation in and support for the station. However, the lack of listener involvement in questions about organization and financial support for the station means that some good ideas may be missed. ■

Jose Luis Aquirre Alvis is currently working with Radio San Miguel in Bolivia. This article is based on research conducted for his master's thesis, completed last year at Iowa State University. For futher information, contact him through Radio San Miguel at Casilla No. 9, Riberalta, Beni, Bolivia. Eric Abbott is Professor of Journalism and Mass Communication and Chair of the Technology and Social Change Program at Iowa State University. He can be reached through the Department of Journalism, 204B Hamilton Hall, Iowa State University, Ames, Iowa 50011, USA.

Harnessing a White Elephant

How an audiovisual facility in Malawi was redirected to meet local needs

by David S. McCurry

Q: *If ants make anthills, what do white elephants make?*

A: *Ivory towers*

A "white elephant" – with no disrespect to its endangered species' namesake – is a well-know euphemism for large, expensive, and often useless pieces of equipment, buildings or programs which contribute little to the actual needs for which they were intended. One such facility existed at college in Malawi. It was created in the late 1970s as a center for using video in teacher training. Until 1988, however, it did not live up to expectations among college administration and planners, even though it remained an attractive place to show off to visiting dignitaries. But new perspectives on the use of communication technology, and improvements in the technology itself, caused the white elephant to become useful after all.

Showcase Facility

Video technology has been used to train secondary and primary school teachers in Malawi since the mid-1970s. Video was introduced in teacher training in 1976, when British and North American educators working with Malawian colleagues began using black-and-white, reel-to-reel recording equipment in a teacher training method known as "micro-teaching." Microteaching consists of a master teacher working with small groups of student teachers, in simulated classroom experience. A student teacher presents a 5- to 10-minute mini-lesson that focuses on one of several teaching behaviors such as questioning techniques, introductions, or use of visual aids. With video, the student is recorded and the tape is used as a feedback tool in review sessions. In Malawi, this method has predominated in the use of video in education.

Given this relatively limited use of video technology in teacher training, a much larger facility that would house a color video production studio was proposed. Under a World Bank loan of approximately US $400,000, the International Development Association assisted in constructing an Audio-Visual Center at the Chancellor College campus of the University of Malawi at Zomba. Chancellor is the largest of four teacher training colleges in the country and is responsible for secondary teacher training, along with providing liberal arts education for over 1,000 students. Completed in 1984, the Audio-Visual Center is a well-designed and furnished video production facility, equipped with a two-camera, 1,500-square-foot color studio, a special effects generator and switcher, editing suite, and portable field equipment. It was originally given a broad mandate: staff, faculty and students of the teacher training college would use it to produce materials and distribute them to other teacher training colleges, to conduct research and to review pre-recorded video materials.

Ed Payuan, FAO

Production crew records a scene to be used in a video drama about community forestry in Malawi.

But while much thought and planning was directed toward the physical aspects of the building and its equipment, little was done to train local staff. Because of their past experience, members of the faculty equated video only with teacher training exercises under the education department. So microteaching evolved as the main use of the building and its video equipment. As a result, the facility remained largely underutilized from 1984 to 1988. For example, the editing equipment was hardly touched during this time.

Please Handle This Equipment

By the late 1980s, video technology had entered a phase of rapid growth. Educational facilities such as the Audio-Visual Center were usually equipped with the U-matic video format that, while technically superior in picture and sound quality, remained bulky and expensive. However, video manufacturers have concentrated on the personal user market, making video an accessible medium to more people than ever before. Video is now being used by small organizations and groups that could not afford the technology previously. The center's audiovisual equipment, which cost about $50,000 in 1984, could be supplied today for about $15,000.

Reflecting these developments, the Audio-Visual Center was put to work as a video production facility, much as it was originally

BEST COPY AVAILABLE

designed to do. In 1988, a new program was developed with assistance from the United State Information Agency's Teacher-Text-Technology Initiative for Africa. UNICEF provided new VHS video editing machines and USIA provided camera-recorders. The equipment in this format provides a link between production and potential users.

Now, in addition to the usual micro-teaching sessions, the Audio-Visual Center provides video production services to other college departments and to organizations outside the university. Requests for development of video materials have rapidly increased as various organizations and individuals realize the potential of video as a communication tool. Below are several examples of productions made at the Audio-Visual Center to date:

- UNICEF documented Malawi's expanded program on immunization in a 25-minute video, titled "Bridge to a Healthy Future." The Audio-Visual Center's field recording and editing equipment were used for the first time in producing the video.
- College students, with a minimum of training from the center's technical staff, have used video to generate programs expressing their views on local events and to produce cultural programs. They produce "Electric Observer," a half-hour bimonthly program presenting news, sports, cultural events, and even music videos.
- The college's Fine Arts and Performing Arts Department is using video to support its "Theater for Development" program. Students are videotaped in a village setting using popular theater to engage villagers in discussion and action about forestry practices and village needs. The video drama, once complete, will be carried from village to village by a mobile video van and used as a discussion starter.
- "Aquaculture and the Rural African Farmer," a video report on successes and lessons learned in acquaculture training, was produced for an international conference on fish farming.

This expanded range of uses has significantly improved the cost-efficiency of the project. Previously, the cost of the facility and its equipment did not match the real needs of teacher training with video at that time. But as development planners began to recognize the potential of video, the Audio-Visual Center has generating revenue – about $6,000 the first year – by charging NGOs and multilateral agencies for video services and productions. As a result, the Audio-Visual Center is moving closer to financial self-sufficiency, covering its operating costs in the first year and it has established a development fund to assist in future purchases for expansion and replacement of old equipment.

Rescued from Obscurity

Through no fault of its own, the Audio-Visual Center gained a reputation as a white elephant in its early years. Now an open-door policy encourages other faculty and the wider college community to come into the facility and use the equipment and resources, assisted by technical staff. The Audio-Visual Center as production facility using video technology is helping the college and the university to reach beyond its own "ivory tower" existence and form stronger links with community and rural development efforts. ■

David McCurry was a visiting Fulbright Lecturer in Educational Technology at Chancellor College, University of Malawi, until May 1991. He is also associated with the Center for International Education, University of Massachusetts and can be reached by mail at 285 Hills House South, Amherst, Massachusetts 01003, USA.

Tune In to Peace

Radio for Peace International is a unique broadcast station in at least three ways. First, it is the only international shortwave radio that is non-profit and non-commercial. Second, it is the only radio in which the programming focuses solely on peace, ecology and social justice issues. Third, since it is located on United Nations land at the University for Peace in Costa Rica, it is possibly the only shortwave radio station not regulated by a national government.

Radio for Peace International broadcasts peace-related programs 18 hours a day to an estimated audience of 35,000 listeners in 50 countries. Programming covers conflict resolution, sustainable development, elimination of world hunger, peace education, ecology and the environment, and human rights. Beginning last May, the station broadcasts one hour of women's programming per day. Currently, broadcast languages are English, Spanish, German and French, with plans to extend coverage to all official UN languages.

The radio came into being in 1987 at the initiative of Richard Schneider, chancellor of the US-based World Peace University, a cosponsor of the station. Discussions about how to promote a peace and ecology agenda persuaded Schneider that "international alternative media would be critical to reach the poor and disadvantaged in developing countries." Last year, when asked to define the station's community at a community radio conference, Schneider insisted that "our community is the world." He personally helped build from spare parts the original 5-kilowatt transmitter that is still used to beam the station's signal worldwide. Future plans call for the use of a solar-powered 20-kilowatt transmitter.

The presence of the UN Peace University is not the only reason Costa Rica was chosen as the station site. Costa Rica's reputation for peace stems from its decision 40 years ago to abolish its military. Plus, its proximity to the equator means that the station gets better frequencies with less interference.

The station invites listeners to contribute programming in any language. Submissions should be made on broadcast-quality cassette, or quarter-inch reel-to-reel tape. You can tune in to the station through three frequencies: 15.030 MHz; 13.630 MHz; and 7.375 MHz (USB).

For more information, contact Radio for Peace International at Apartado 88, Santa Ana, Costa Rica. Telephone: (506) 49-15-11. Or contact the US office at PO Box 10869, Eugene, Oregon 97440, USA. Telephone: (503) 741-1794.

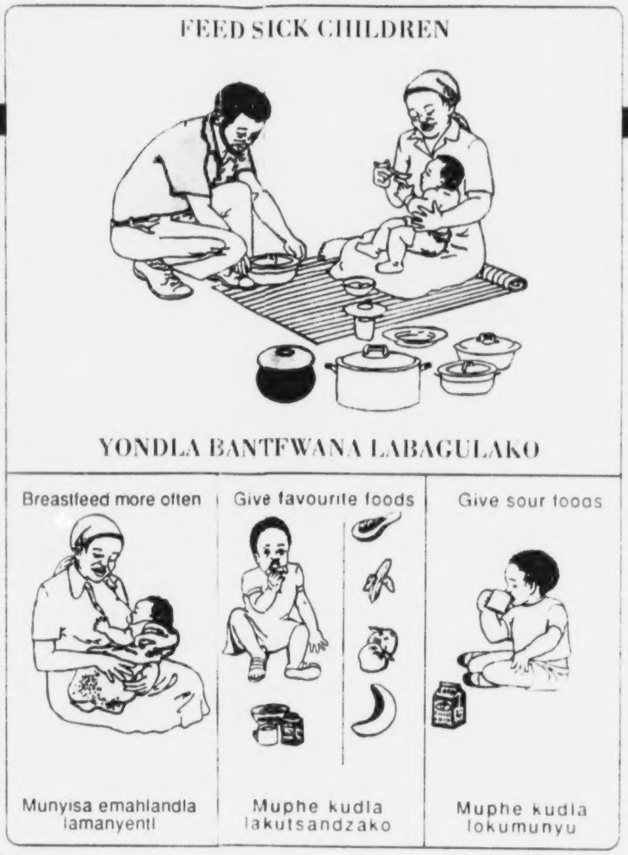
Picture Perfect: Generating Graphics Electronically

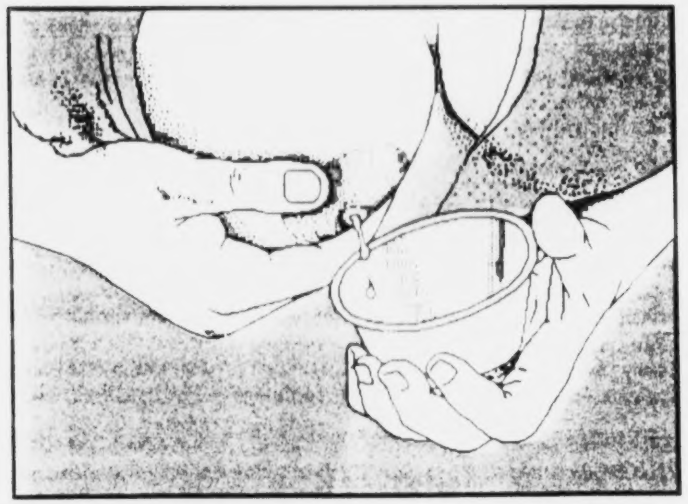
by Benedict Tisa

Educators who prepare printed educational materials for use in Third World countries commonly encounter difficulty in preparing art work. Over the years, some attempts have been made to supply visual models which might make the job of drawing easier for project workers with limited training. However, these models have not proven to be very effective when "camera-ready" materials – that is, ready in size and quality for the printing process – are needed. It has also proven difficult to adapt materials which have been successfully used in one region or country to one which is ethnically or culturally different, because the models may not easily lend themselves to change. Instead, project workers usually are forced to start from scratch. This is not only time-consuming, but also costly.

Faced with many of these problems, the Swaziland Project for Promotion of Improved Young Child Feeding found a solution by using a MacIntosh computer and modest graphic software. The project, which began in 1986, was implemented by the Swaziland Ministries of Health and Agriculture, with technical assistance from UNICEF, U.S. Agency for International Development and the Manoff Group. During the project design stage, we decided to produce various printed materials to promote good child feeding practices, including flip charts and counseling cards. Faced with time constraints, lack of graphic materials and people to produce them, we resorted to using MacIntosh computers at the Ministry of Agriculture. There were several advantages to using computer-generated graphics:

- Any revisions needed could easily and quickly be done on the computer screen. There was no need to make entirely new drawings or to re-photograph.
- The images were realistic and contained detail that is usually only captured in photographs.
- Time and money spent in graphic preparation were saved, since the computer print-outs were taken directly to the printer for mass production.
- The same images could be enlarged or reduced for a variety of formats.
- The image bank was made available to both the Ministry of Agriculture and the Ministry of Health.





The illustrations on these pages were generated by computer for the Swaziland Project for Promotion of Improved Young Child Feeding.

Simpler and More Flexible

There were several steps involved in creating visual materials by computer. First, we decided on the form, context, and use of visuals based on an understanding of the audience's attitudes and practices. Then an artist at the Ministry of Agriculture was trained to use the new computer graphics equipment and scanners. The scanner operates somewhat like a copy machine, except the images are converted into electronic codes which appear on the computer screen. On screen, the images can be changed and adapted as needed using the computer graphics programs. Images could be turned into line drawings or half-tones (which use a dot pattern to create variegated shades, as in a photograph) and generated through computer print-outs.

At this point, we collected images that were needed, drawing on already existing images and photographs taken specifically for the project. The images were scanned, adapted and draft copies were generated. The drafts were reviewed and pre-tested, and adapted as needed. The revised images were printed on a laser printer, which makes a very detailed image and delivered to the printer as camera-ready. Colors were assigned when the offset negatives were produced. There was no need for outside graphic services and little paste-up work required.

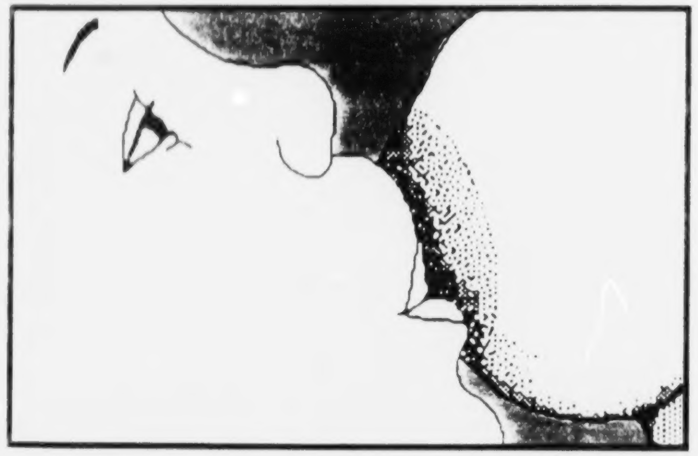
During the life of the project, materials in several formats were developed. In addition to a flipchart, poster and hand outs, the project also used computer graphics to experiment with various other media forms such as rubber stamp images, children's coloring pages, and crossword and activity pages for the schools. All materials were produced at a cost lower than using traditional graphics. In addition, the project could produce new materials using the same images, as needed, thus reinforcing the messages.

More Than a Word Processor

It is now common for projects and programs of all sizes to have a computer. It is also important to remember that computers can be used for tasks other than word processing and data storage. As our project demonstrated, the use of computer graphics to produce project support materials has simplified a sometimes costly and complex task.

Aside from saving time and money, using the computer also allows the production of specialized audiovisuals from the image bank. Handouts and flyers can be produced from images in the bank and copied in small numbers on the photo copy machine. High quality editions of trained materials can be produced easily and quickly in small quantity for workshops and seminars. Materials tailored to the special needs of a situation can be made by the field workers themselves, since the program is both simple and economical to use. The potential of the system is just being recognized. ■

Benedict Tisa is a communications consultant who has worked with computer graphics for the production of educational materials in Swaziland, Tunisia, Niger and Haiti. For further information, contact him at 45 Haddon Ave., Westmont, New Jersey 08108, USA. Telephone and fax: (609) 854-6983. Electronic mail: Compuserve 71650,23.



Price Tags

How much does computer graphics equipment cost and is it a worth-while expenditure? In Swaziland, we had access to equipment used by the Ministry of Agriculture and personnel that could be trained. But for most projects, it might be difficult to justify purchase of equipment solely for production of print materials. A purchase would be more cost-effective if the equipment is also used for word processing, data collection and desktop publishing.

Minimum equipment and software for start-up would include:

- a personal computer with 8-megabyte Random Access Memory (RAM), 60 megabytes of hard-drive storage, a keyboard, a "mouse," and floppy disk drive (cost – approximately US $4,300);
- a dot matrix printer for drafts and data ($250-$650), and a laser printer ($2,500-$4,000);
- a scanner for copying illustrations and text ($300-$2,000);
- various software ($500); and
- filters, breaker cables ($80-$1,000) and supplies such as diskettes, toner, paper, etc. ($1,000).

Depending on whether there is a need for technical assistance, the total cost for start-up would run between $10,000 and $30,000. There would also be the additional cost of hiring and training personnel to operate the system.

– B.T.

Demystifying Technology through Solar Power

by Bunker Roy

Poor or erratic power supply created major development problems for the rural poor in Tilonia, a remote village in the northern desert region of Rajasthan, India, where I live. Communication proved difficult due to poor infrastructure and general lack of technical and financial resources. Rail and road communication barely reached 10 percent of the 60,000 people living in 110 villages in the surrounding region. Information of vital importance on government programs, subsidies, or new development schemes reached us faster through the "bush telegraph" and word of mouth.

Although electric and power lines were visible everywhere, electricity at sufficient voltage did not reach villages more than six months per year. Erratic power supply meant that electric-powered pumps would burn out, light bulbs would burst, or power would be made available at the dead of night, without warning – making the process of irrigation a nightmare.

Films and audiovisuals could not be shown regularly for lack of power. Evening schools for out-of-school youth or school drop-outs were suspended or even closed for lack of power. Piped water supply was erratic because electric lines and power houses were down for lack of proper maintenance. Health and family planning clinics trying to catch up with the backlog of severely ill patients had to wait hours, sometimes days, to resume work.

SWRC

SWRC

Thanks to the solar electrification project, this sheepherder (above) and shoemaker (below) from Tilonia are able to attend night school.

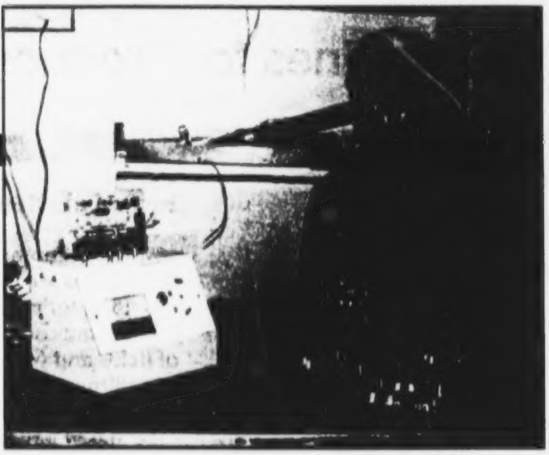
A Natural Solution

The answer to these problems was found in the one abundant and enduring source of power we had: the sun. The desert state of Rajasthan receives more than 300 days of sun each year. Although it took us 17 years to realize the potential of solar energy, it took us only two years, 1986 to 1988, to construct a center dedicated to the use of technology for socio-economic development and for improving the quality of life.

It is the only technology center of its kind in India. The center has managed to demystify technology, to make it accessible, understandable and replicable by the very people who use it for their own welfare and development. Specifically, the center identifies simple, inexpensive and people-oriented technologies, mobilizes people at the village level to apply these to local problems, and fosters dialogue about appropriate technologies for specific target groups. In other words, the center has managed to strengthen communication channels between the beneficiaries at the village level and the scientists and technologists, stimulating a process of learning and unlearning for both parties. The 60,000-square-foot center was constructed using local materials at a cost of approximately US $200,000.

Solar panels supplying a total of seven kilowatts have been installed at the center, making it self-sufficient in power needs for the next 20 years. Three kilowatts are used for lighting over 300 tube lights, while the remaining four are used to operate equipment for the welfare of the community. Four computers run off the sun for ten hours; refrigerators store vaccines for immunization; a flour mill, and solar pumps that distribute 30,000 liters of water every day for drinking and social forestry plots, a soil water testing laboratory where mobile kits running off solar power are used to test contaminated drinking water from open wells, hand pumps and piped water supply systems.

But by far the most crucial outcome is the long-term investment Tilonia has made in providing light for 30 night schools in villages lacking electricity. Three hours of light is made available from one 30-watt panel, two 9-PL lamps, and one deep-cycle battery, supplied at a total cost of US $1,000. This vital effort for building knowledge and passing information to 2,000 children over the past five years has started yielding results. Boys and girls who look after their sheep, goats and cattle in the morning or do household chores for the family in the day come to the school at night. Since the school shines like a lighthouse for miles around, SWRC



Karim, who can write little more than his name, makes charge controllers and invertors. He installed 60 solar units in three villages.

parents are sending girls to school for the first time.

At school, they learn how community facilities like the post office, the bank, the police station and the cooperative society work, because even these services have totally mystified half the residents in most villages. Television, videocassettes and slide projectors are used in the center to expose these children to the wonders of science and technology in a simple manner. Now they take solar power in their stride as if it is a part of their lives, when elsewhere in the state it is still unheard of.

Barefoot Technicians

But the use of solar energy is nothing extraordinary. What is unique is that the entire planning, implementation and maintenance of the system needed no electronic or civil engineer, no highly trained expert with degrees from an American or European university. Instead, it was organized and carried out by rural youth with educational qualifications no higher than high school. They had never left their village and never seen a city. They were all self-taught and all have become competent through hands-on experience.

These very people, semi-literate in the eyes of the world, installed solar cells in 30 night schools in remote desert villages where central electricity is unlikely to arrive even by the turn of the century. They also fabricate sophisticated charge controllers and invertors for the solar units in their rural workshops.

In the nearby villages, medical operations are performed through the assistance of solar cells – to the amazement of both doctors and patients. Training programs for traditional midwives, mechanics who repair hand pumps, and teachers are carried out at night with the help of solar cells. Traditional puppeteers cart their show from village to village, using stage lighting powered through solar cells.

These people, unqualified on paper, and not entitled to the lowest government jobs as sweepers or errand boys, installed 15 solar cell units in one of the most remote areas of the world: Ladakh, which is situated 11,500 feet high in the Himalayas and where temperatures reach -20°C. Until then, electricity even through diesel generators was out of the question. But the Tilonia team left a dazed group of villagers who are amazed at the "magic" that has given them light from the sun. The villagers have been trained to maintain their own household units and not depend on support from outside technicans, who are at least a two-day walk away.

These people, handling sophisticated equipment and gadgetry with the same familiarity as they handle their own bullock carts, have been commissioned by the government of India to install 300 solar cell units for evening adult education classes in eight states of India, as far as 2,000 miles away from their home village. Other state governments have been so fascinated by Tilonia's experiment of solar electrification of remote villages that they have requested their help in bringing electricity to residences.

What this experience shows is that however sophisticated the technology, it is not beyond the comprehension and understanding of the rural poor, given adequate training, on-the-job experience and teamwork. Educational qualifications are secondary. The process of demystification of technology leads to the development of human beings. The right environment for learning leads to communication. By a happy mixture of circumstances, Tilonia has managed to provide both. As an old proverb declares, "Traveller, there is no path. Paths are made by walking." ■

Bunker Roy directs the Social Work and Resource Center (SWRC), an integrated rural development program that was founded in 1972. SWRC distributes two audiovisual resources on the electrification project: a 33-minute, English-language video entitled "Technology and the Last Man," and a video film on the experience in Ladakh. Each is available in VHS PAL format for US $100. Contact: SWRC, Tilonia 305 816, Madanganj, Rajasthan, India.

Rural youth handle sophisticated equipment and gadgetry with the same familiarity as they handle their own bullock carts.

Guidelines for Producing Training Films and Videos

by Pamela Beyer Harper

In developing countries, films and videos are increasingly being used as tools for training people in technical procedures or techniques across a variety of fields and occupations, from health to agriculture to family planning. But making a good technical film demands careful planning and attention to a variety of details. At the Association of Voluntary Surgical Contraception, we learned this lesson recently when we produced a film on a surgical procedure for female sterilization, in collaboration with the Family Planning Association of Kenya. Directed at African doctors and nurses, the film was shot entirely on location in Kenya. From this experience, we can draw four guidelines for producing technical films or videos.

1 Find a technical expert.

It is essential to identify a technical expert to supervise the technical content of the film. The advisor helps to identify steps of the procedure, objectively evaluates variations in the procedure, decides which variations should be shown and recommended in the film, and consults other experts as questions arise during scriptwriting and editing. However, the advisor must have the patience and time to devote to the numerous details involved in developing a script, shooting the footage and editing the production.

It is helpful if the advisor is not personally invested in the procedure being shown. For instance, a surgical film will often feature the technique of a particular surgeon, which may be difficult to transfer to other settings and other surgeons. The technical advisor must be able to distinguish those aspects of the procedure that are essential from those that can be modified without diminishing safety or effectiveness.

Betty Gonzales, AVSC

Film crew prepares while women wait for services in a Kenyan clinic.

The technical expert is present during all photography. He or she tells the production crew which shots are acceptable, which must be filmed again, and which should not be used. During editing, the advisor reviews the footage to be sure details of the procedure are being shown correctly and helps to select the final shorts included in the film.

2 Clearly identify steps in a technical procedure.

A training film of a technical procedure usually presents a recipe that describes every step in the sequence. But when planning for the film begins, the steps often have not been clearly identified. In our case, the producers and script writers consulted four sources to determine the steps:

- They read printed material and slides describing the procedure.
- They interviewed experienced clinicians and asked them to describe the procedure step by step, often recording the interviews for later consultation.
- They observed the technique being performed in the operating room and took notes.
- Before beginning scriptwriting, they videotaped several procedures, using a simple camera and lighting. The producers, writers and medical expert then reviewed the footage to confirm the steps of the procedure. The preliminary taping also gave the camera operator an opportunity to plan camera angles for final shooting and to practice working with the surgical team.

This research process uncovered several inconsistencies and variations, which had to be discussed and resolved before the script was finalized and shooting began.

3 Involve trainees in film production.

All too often, training materials are produced with little or no participation from trainees. As a result, the finished product fails to meet the learning needs of the intended audience. It is essential to involve both trainees and trainers in preliminary research, script development and pretesting of the rough-cut film or video. One major contribution these individuals make is to iden-

BEST COPY AVAILABLE

tify aspects of the procedure that are new or difficult to learn.

For example, after reviewing a rough cut of our film on female sterilization, trainers and trainers recommended that the film devote special attention to anesthesia procedures, and that it give more detailed instruction on the use of a particular surgical instrument. The production team incorporated both suggestions into the final film.

4 Work with experienced producers, scriptwriters and crew members.

Inexpensive equipment has made video technology available to a wide audience of amateur users. But professional film and video production is both technical and complex, requiring a variety of specialized skills. Producers, scriptwriters, camera operators and lighting and sound technicians should have experience in producing films on technical procedures. The team should include nationals of the country in which the film is produced and all team members should be sensitive to the cultures and backgrounds of the people they will be filming. In addition, the crew must be aware of airport security regulations and customs requirements regarding camera equipment and film. They must also be sure that filming locations have an adequate supply of electricity.

Thanks in part to these rules of thumb, our surgical training film has been quite a success. It is now being used to train doctors and nurses in 17 African countries and many have demonstrated that they have learned the major concepts presented in the film. The response to the film has been "overwhelmingly positive," according to a 1990 evaluation report.

■

Pamela Beyer Harper is Publications Manager of the Association for Voluntary Surgical Contraception. The training film on female sterilization is available in English and French in both film and video formats (16-mm, NTSC, PAL, SECAM). The film version costs US $227; the video version, $100. To order, contact the association at 122 East 42nd St., New York, NY 10168, USA. Telephone: (212) 351-2500. Fax: (212) 599-0959. Telex: 425604 (AVS-UI).

The Association for Voluntary Surgical Contraception and the Family Planning Association of Kenya acknowledge the Program for Appropriate Technology and Webb Productions for collaborating in the production of the film referred to above.

Motivating Economic Action

When the government of The Gambia introduced an economic adjustment program in the late 1980s, it cut many programs and subsidies and began to urge communities and the private sector to supply the services that it had provided for years. But how do you persuade illiterate small farmers to pay for seeds, fertilizer and mechanized services that they had previously received free or at low cost? How can they be motivated to manage their own project?

In 1989, Worldview International Foundation, an international NGO specializing in development communication and media, took on this difficult task with support from Unesco. The challenge was to convince 3,000 rice-growing farmers living in two regions of The Gambia to take over from the Ministry of Agriculture full management and financial responsibility for the Jahally Pacharr Smallholder Rice Project. As Lal Hewapathirana, WIF coordinator for the project, explains, "We based our trust in development communication for this macro-social transformation process." Specifically, communication training, two-way communication between project management and local farmer committees, and social education of farmers were seen as the main activities by which the farmers would achieve self-reliance and financial self-sufficiency.

Preliminary focus group discussions revealed, among other things, that farmers' low literacy and numeracy skills would be a major obstacle to achieving project goals. Therefore the project decided to strengthen and expand the existing literacy program alongside communication activities.

The 70 project villages were divided into 10 zones. For each zone, a rural communication agent who lived and worked among farmers was trained in message communication, group dynamics, collection and dissemination of information, and decision-making. Each agent then carried out information, education, motivation and training programs with local committees of farmers. Besides group discussion, agents made use of simple materials such as flip charts, posters, videos and audio-cassettes – produced in all four tribal languages of the region.

Within one year's time, farmers had come a long way toward assuming responsibility for the project. Two events illustrate how much progress they had made. Last year, leaders of farmer committees were given an opportunity to visit a similar rice-growing project in Senegal. Through mutual discussions, the Gambian farmers learned that their Senegalese counterparts increased production yields through a careful cropping schedule, that their local committees assumed primary management responsibility for the project, and that their production costs were actually two to three times higher than in The Gambia. When the team reported these findings to fellow farmers, many Gambian farmers were inspired to take on greater responsibility and certain negative attitudes changed. The experience, says Hewapathirana, "was a case of seeing to believe and listening to counterparts to be affirmed."

The second milestone was reached when farmers resolved to address the problem that had plagued them most since the government withdrew services: marketing their rice. All ten zone committees held separate discussions to plan marketing strategies, which were then referred to regional structures. Eventually a strategy emerged through a process of consensus that satisfied farmers and project administrators alike. This "was a great outcome of what true communication could offer," concluded Hewapathirana. Ever since, farmers have been requesting more and more training to support their management role.

Project organizers are convinced: communication can work to build self-reliance and self-sufficiency – even under difficult economic conditions.

Adapted from a report submitted by Lal Hewapathirana, Assistant Director for Rural Communications at Worldview International Foundation (WIF). For more information, contact WIF, c/o Jahally Pacharr Small Holder Project, Sapu, Gambia; or WIF, 10 Kinross Avenue, Colombo 4, Sri Lanka.

Results of the 1990 DCR Reader Survey

Five months after we distributed the 1990 reader survey, more than 780 have been returned – about 15 percent of our total readership – and they are still trickling in. We appreciate everyone who took time to complete the survey, since the results are an important tool in our long-range planning. Below, we share the major findings with you and also inform you about what changes we intend to make in response.

How You Use It

Most respondents seem to use the *DCR* for two main purposes: monitoring trends and developments in the field of development communication, and acquiring ideas on the application of communication technologies. Smaller but still significant numbers use it for teaching or research, identifying other organizations, and ordering resources. These results suggest the need for the *DCR* to keep abreast of new and emerging trends, while continuing its traditional emphasis on communication applications in the field.

More on Health and Low-Tech Communication

The diversity of topics that respondents proposed for increased coverage in the DCR implies that their interests are many and varied. The highest share indicated that they would like to see the *DCR* give more attention to health communication and education, especially in support of nutrition, disease prevention and child survival. This preference was followed by calls for more information on education, particularly distance education and literacy; environmental communication; and communication for rural development and agriculture. Additionally, a significant share of respondents want the *DCR* to give greater attention to information technologies and telecommunications, traditional media, and communication evaluation and research. All these suggestions are being taken into account in planning future editions.

> *The most consistent suggestion made in written comments was to improve the DCR's appearance.*

In terms of the balance of *DCR* coverage across a range of criteria, more than a third requested greater emphasis on grassroots, local experiences, and an even larger share requested more emphasis on low-technology approaches. More than half felt that there are not enough contributions by authors in developing countries. We restate our commitment to maximizing contributions from developing country authors, and encourage readers in those regions to submit article proposals, research reports, etc. As in the past, we will periodically publish themes for future issues and solicit contributions.

Approximately two-thirds of readers said that they like the *DCR*'s current approach of focusing on one theme per issue. However, the number who wanted each DCR to cover a variety of topics is large enough that we have decided to do what many respondents proposed: devote several articles in each issue to a single theme, but also leave room for material on other topics.

Our New Look

As for the *DCR*'s appearance, 57 percent of readers, judging on the basis of our previous design, found the publication "plain, but functional," while most others rated it as "attractive and inviting." Nonetheless, the most consistent suggestion made in respondents' written comments was to improve the appearance, especially by adding more visual elements. As you know, we adopted a brand-new design staring with *DCR* no. 72, giving the publication a bolder, brighter image and a more spacious layout, enlarging the type size, and increasing the number of photographs, graphics and illustrations. The feedback about the new design we have received so far has been very positive, but we would like to hear from more of you – especially suggestions for further improvements.

"How Would You Improve the *DCR*?"

One of the most frequent responses to this question was to encourage more contributions from readers, especially by announcing themes in advance and soliciting contributions, or possibly by introducing a "readers' page." Others also called for more announcements and notices of new resources, especially those distributed free of charge, and more practical, "how-to" articles and case studies. These suggestions are being incorporated into our editorial planning. Certain proposed changes were so logical and easy that we have already made them – such as adding authors' full contact addresses, and reducing the continuation of articles on non-consecutive pages.

Unfortunately, we are unable to act on other suggestions, such as sending the *DCR* flat rather than folded, publishing it more frequently, or stitching the pages – all would substantially increase our printing or mailing costs. Furthermore, respondents especially in Africa requested that events, workshops, courses, etc. be announced farther in advance. We recognize that our quarterly publication schedule combined with slow overseas mail delivery contribute to this problem. We will make a greater effort to publish more timely notices – that is, when we receive them with sufficient lead time!

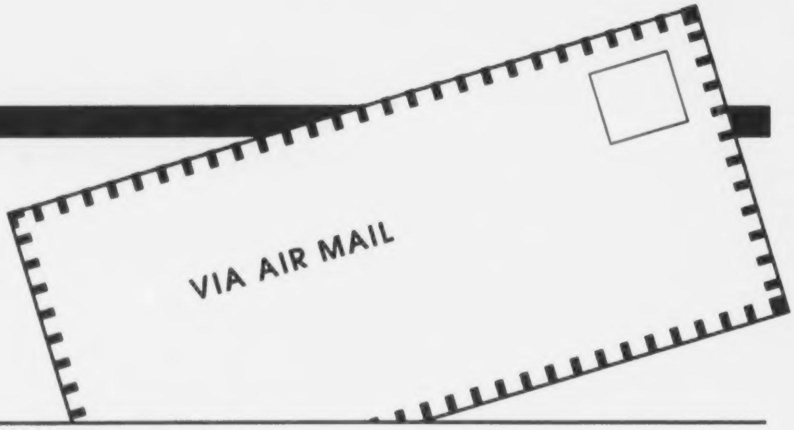
Readers' Profile

The survey returns also gave us a better idea about who our readers are. Since most readers share their *DCR* with others, we estimate the total *DCR* readership at approximately 23,000. The largest group of readers lives in the Asia and Pacific region, followed by decreasing shares in North America, Africa, and Latin America. This is the first time we had asked readers to identify themselves by gender, and a surprising 70 percent turned out to be men. While a majority of readers preferred to read the DCR in English, readers living in Latin America (12 percent) said they would use a Spanish-language edition more. Unfortunately, limited finances prevent us from translating every *DCR* edition, but we remind readers that we publish French and Spanish translations of selected editions. (For a complete list, see the publications order form in *DCR* no. 72.)

In terms of their professional field, respondents appear to be distributed across a range of sectors, with the largest concentration in education – both in formal school systems, from primary through university level, and in out-of-school education programs. The remainder were fairly evenly spread across the sectors of agriculture, health or nutrition, journalism and mass media, with family planning and the environment accounting for only a small percentage of respondents. These results are somewhat surprising given the strong interests in health and environmental communication mentioned above. The sizeable representation of educators corresponded with the significant share – almost a third – who identified themselves as scholars or researchers. About one out of six respondents said that they worked as staff of NGOs and PVOs, while one out of ten were national government officials or information managers.

A more detailed statistical summary of survey results is available upon request by writing the editor at the address on page 2. ■

The DCR thanks Diana Duff, a graduate student in international relations at The American University, for her assistance in entering and analyzing the data from the reader survey.



Letter to the Editor

We received the letter below several months ago in response to DCR no. 70 (1990/3), "Communicating with Women." It raises a number of points and interpretations of DCR articles that others may find quite controversial. We invite readers to share their reactions on this topics or other topics addressed in the DCR.

Dear Editor:

Having gone through a copy of the *DCR* [no. 70], I came to learn a few things:

- women all over the world have similar mind and feeling in confronting and doing things;
- most women are contented as long as they are healthy, married, and have a home with some children;
- women are not prepared to involve themselves in new strategies.

. . . Probably, if I were addressing a group of women with this message, some of them would shout at me. But I strongly support all that is said in this *DCR* in favor of bringing women into realization that all that is done by men in technology, culture, and politics, can as well be done by women. There is no law written anywhere, be it Bible or Koran, that with development, men should do that and a woman should not do this.

My opinions about this issue:

- Women should learn through practice. If a woman has managed something nicely, then she should aspire for further and more sophisticated career.
- Setbacks are there all the time with development. So when they occur in the presence of a woman's management, it should not be connected with her feminine category. Instead, it should be seen as just a problem arising in an organization.
- Men all over the world should know that women are good company in development. Good company is a good friend, and a good friend should be accepted and helped in day-to-day dealings.
- History and experience tell us that women are not ready to handle big matters in tough situations. So taking slow and sure steps should be their guiding approach to involving themselves in village, national and international development.

A.M.B. Kissesa
Medical Assistant and Chairman,
Tanzania Workers Association, Sumve Hospital,
Mwanza, Tanzania.

What's New, What's Coming

Bolivian Radio Calls for Support

Mallku Kiririya, an Indian radio station in southern Bolivia, was launched in June 1990 by a regional development and cultural organization called Taypikala. The station is run by Indian farmers who broadcast in Quechua and Aymara, the two indigenous languages of the region.

Next year, 1992, marks the 500th anniversary of the so-called "discovery" of the Americas by Christopher Columbus, and many indigenous groups throughout the continent are mobilizing against official celebrations of this event. Radio Mallku Kiririya wants to enlarge its coverage to the five provinces in the region and to improve its recording capacity. It has issued an appeal for $30,000 in financial support needed to carry out this project. The European Federation of Community Radio has indicated that it may assist individuals or institutions that are willing to help.

Contact: Asociación Taypikala, Norpotosi, Casilla Postal 8679, La Paz, Bolivia; or FERL, B.P. 42, F-04300 Forcalquier, France. Telephone: (92-73) 0598. Fax: (92-73) 7106.

Courses

A three-month course on **"Health Education/ Promotion for Primary Health Care"** will be held January 6 – March 27, 1992, at the Liverpool School of Tropical Medicine. The course aims to improve participants' ability to design, plan, manage, implement, and evaluate programs. Applicants should have some experience in health education or promotion. Cost: £ 2,800, not including living expenses. Contact: Department of International Community Health, Liverpool School of Tropical Medicine, Pembroke Place L3 5QA, UK. Telephone: (51) 708-9393. Fax (51) 708-8733. Telex: 062 7095 UNILPLG.

From September 26 through October 26, 1991, the Center for Foreign Journalist will conduct the **"1991 African Women Publishers' Training Program"** in the United States. Eight women from Africa will be exposed to and trained in editorial and management techniques for small publications, include desktop publishing. The workshop – which is free for participants – is open to African women who publish or manage an English-language newspaper, magazine or newsletter, preferably one that addresses development issues, and who have basic familiarity with personal computers. Interested applicants should contact the Center for Foreign Journalists immediately at 11690-A Sunrise Valley Drive, Reston, Virginia 22091, USA. Telephone: (703) 620-5984. Fax: (703) 620-6790. Telex: 265-132 CFJ.

Organizations

Abhivyakti – Media for Development, a private group based in India, manages a media resource center, produces media materials, and holds training workshops for development organizations and schools. Recently, the group produced a slideshow on women's domestic as well as wage labor. Posters, songs and booklets on the same theme were generated through workshops with women's groups, and are now being distributed with the slideshow as a multimedia package. For more information, contact: Abhivyakti, PO Box no. 6, College Road, Nashik - 5, India.

Conferences

The Pacific Telecommunication Council will hold its 14th annual conference January 12-15, 1992, in Honolulu, Hawaii. The conference theme is **"Regional Interests and Global Issues: The Challenge of Telecommunications Integration for the Pacific."** Paper proposals are now being accepted. Immediately following the conference on January 16-17, the Council will offer 12 half-day and day-long workshops for telecommunications professionals. To obtain a conference paper proposal form, or for further information, contact: PTC '92, 1110 University Avenue, Suite 308, Honolulu, Hawaii 96826, USA. Telephone: (808) 941-3789. Fax: (808) 944-4874.

New Publications

Lactation Education for Health Professionals, **edited by Rosalia Rodriguez-Garcia, Lois Schaefer and Joao Yunes. Washington DC: Pan American Health Organization, 1990. 213 pp. Individual copies available free of charge from the Institute for International Studies in Natural Family Planning, Georgetown University School of Medicine, Department of Ob/Gyn, 3800 Reservoir Road, NW, Washington, DC 20007, USA.**

More and more health professionals now agree that "breast is best" and this book gives them a tool for bringing this belief into their health and education practice. Its centerpiece is a model curriculum for teaching students in medical, nursing and nutrition schools the basic skills necessary to promote and support breastfeeding. Guidelines for implementing the curriculum as well as a series of articles covering trends in breastfeeding practice and education follow. The bulk of the book's contributions come from health professionals in Latin America. By late 1991, a Spanish-language edition will also be available.

Low-Cost Printing for Development **by Jonathan Zeitlyn. English edition available for £ 6.95 from Intermediate Technol-**

ogy Publications, 103-105 Southampton Row, London WC1, US. Spanish edition available from CETAL, Casilla 197, Valparaiso, Chile. Bangla edition available for Tk 160 from University Press Ltd. Red Cresent Buildings, 114 Motijheel, Dhaka 1000, Bangladesh.

Despite the proliferation of videos, computers, and other sophisticated media in developing countries, print remains the most common communication medium. This newly revised guidebook offers guidance on do-it-yourself printing methods and on how to obtain good services from commercial printers at reasonable cost. New editions in Spanish and Bangla, published in partnership with institutions in Chile and Bangladesh, make it accessible to broader audiences.

***Novela de Amor* by Ana Consuelo Matiella. In Spanish. 28 pp. Available from Association for Voluntary Surgical Contraception, 122 East 42nd St., New York, NY 10168, USA. $.50**

Novela de Amor (Love Story) is a fotonovela of the type widely popular throughout Latin America – a romantic tale presented through photographs and balloon text, comic-book style. But this time the characters, Lupe and Antonio, a middle-aged happily married couple, are not simply spinning out a saga of romance or tragedy. Instead, they deliberating on the serious decision whether to prevent future pregnancies through sterilization. The reader can get Lupe's views in half of the book and, by merely turning the book upside down, can get the male perspective from Antonio. A center insert answers common questions about male and female sterilization.

The Association for Voluntary Surgical Contraception developed the fotonovela for an audience of Hispanic Americans, as well as for use throughout Latin America. Focus group discussions of Latino men and women in California met to discuss their feelings about sterilization and to suggest story approaches, guiding development of the book. The booklet is a good example of how a culturally appropriate format can be used to present a social message.

***Communication, Education and Empowerment: Development Communication Revisited* by Raff Carmen. Manchester Monograph no. 33. University of Manchester, Center for Adult Higher Education, 1990. 121 pp. £ 8.25. Available from Haigh & Hochland, Ltd., Precinct Center, Oxford Road, Manchester M13 9QA, UK. Telephone: (44-61) 273-4156.**

The purpose of this monograph, according to its promotional flyer, is to "break through the myth that commmunication ... 'belongs' to experts, to the powers-that-be. Just as everyone...can gain knowledge and 'make' culture, so communication should be in the power of everyone." With an introduction like that, it would be difficult to argue that the author doesn't take a clear stand. On the contrary, Carmen lionizes the contributions of Paolo Freire as well as other advocates for empowerment and participation of the poor, like Andreas Fuglesang, Julius Nyerere, and David Korten, while taking apart Everett Rogers, Daniel Lerner, and Wilbur Schramm.

The monograph lacks much in the way of practical application, except for a few descriptive case studies. However, it helps elaborate in broad strokes some of the theory, debates and experiences in the development communication field. It also attempts to reconcile the sometimes confusing relationship between communication and education. Carmen's prose can occasionally be polemical, but nevertheless admirable in its assertiveness and clarity.

Job Opportunity

The Food and Agricultural Organization invites applications for the position of Communication Officer in Audiovisual and Video Techniques, based in Rome, Italy. Responsibilities include assisting in the formulation of technology and equipment components for communication projects, and providing technical assistance and training in audiovisual production for field programs. Applicants should have three years' experience in audiovisual media production, particularly video, and language abilities in English, French or Spanish and one other language. To apply, send resume to: FAO, Development Support Communication Branch, Room A-233, via delle Terme di Caracalla 00100, Rome, Italy. Fax: (396) 578-2610.

AVSC

*Preparing still shots for **Novela de Amor**.*

BEST COPY AVAILABLE

The Overmarketing of Social Marketing

Yes, but . . .

by Alfonso Gumucio-Dagron

Martin Moulton

Are development communicators in developing countries willing to *buy* the "social marketing" approach, which has penetrated so fast in many international development programs?

The marketers of social marketing are trying to convince everyone that it is the "new wave" of thought, the "in" fashion in the development communication field. But we in the Third World already have the experience of being objects of advertising techniques and we believe that social marketing represents exactly the opposite of what we have been fighting for over the last 25 years: a communication approach that places strength in the community and aims to change the passive receptor of messages into an active communicator.

Social marketing is not a new strategy. The whole concept is borrowed from the advertising strategies of the 1950s, when consumer industries benefiting from the post-war economic boom needed to expand the US market very quickly. As we can see more than 30 years later, the strategy was indeed quite effective in meeting the needs of fast-growing industry.

Social marketing was not born in developing countries, but in the United States. It is not a concept created by development communicators in the Third World. Social marketing has been promoted and marketed by specialists in the United States regardless of what we in developing countries think about it. In fact, in those countries which are not English-speaking, social marketing is not known. Take Latin America, for example. We don't even have a Spanish translation for "social marketing" and we definitely do not use the concept in our practical work on development programs, or in our theoretical exercises. Yet Latin America has achieved much in terms of making communication an important tool for community participation and social development.

Development communicators in the Third World identify with education, not with marketing. We think that development communication and social marketing can merge no better than water and oil can mix. Social marketing strategies aim to persuade, while development communication – whose central concept is participation – aims to educate and organize. Social marketing is vertical, while development communication is horizontal. Social marketing attempts to "catch" a passive audience, while development communication aims to activate community participation. Social marketing relies on electronic and established mass media to do the job, whereas development communication considers low-cost, grassroots-based communication technologies only instruments of a strategy to promote community participation. Social marketing focuses on campaigns, while development communication puts its strength in the *process* of communication.

Social marketing targets individuals and expects individual responses, while development communication addresses the community. Social marketing aims to change individual "behavior" – another typical word, since the approach links advertising with the US school of psychology known as behaviorism – persuading people to perform predetermined actions. Development communication also aims to change people, but through a process of critical analysis of social reality.

There is only one way development communicators from the Third World and those from industrialized countries can find common ground: exchanging experiences and knowing more about each other's practice and theory. There are many ways to achieve this, beginning with a greater effort on the part of development communicators from the North to read the ideas and theories of development communicators in the South, since there are vitually no translations to English.

What Latin America and other regions have achieved in development communication strategies should not be ignored: many successful experiences in our continent could be very useful in other Third World countries if the language and ideological borders are opened.

■

Social marketing represents exactly the opposite of what we have been fighting for over the last 25 years.

Alfonso Gumucio-Dagron is the former Director of the Centro de Integración de Medios de Comunicación Alternativa in La Paz, Bolivia, and presently Chief of Program Support Communication for UNICEF in Nigeria. He can be contacted through UNICEF-Lagos, 3 United Nations Plaza, New York, NY 10017, USA.

Development Communication Report

No. 74
1991/3

Inside this Issue ...

Principles into Practice

The "Fertilizer Bush" Drama" 7

Tips for Documenting and Transferring Knowledge 10

Challenging Tradition in Nigeria 15

Sacred Messages for AIDS Prevention 16

An African Healer Speaks Out on AIDS 18

Weaving Together Folk Media and Mass Media 19

What's New, What's Coming 22

Resources 23

Reader's Page 24

Indigenous Communication and Indigenous Knowledge

by Paul Mundy and J. Lin Compton

An elder in a Pacific island fishing village stands in a beached outrigger canoe. A circle of younger villagers sits in the sand around the boat. The old man peers beneath the canoe as if searching for fish, gestures, hauls on an imaginary net. Too old to go fishing himself now, he is explaining fishing techniques to the less experienced youths.

The old man is passing on to the younger generation a lifetime of experience and knowledge. Knowledge of fish behavior, subtle changes in the sea and the sky, ways of handling nets and boats. Knowledge that means the difference between boats coming home full of fish and boats returning empty. Knowledge that represents the villagers' very survival.

(continued on p. 2)

Reinforcing Campesino Wisdom in the Andes

by Raúl Santana Paucar and Gloria Miranda Zambrano

High in the Peruvian Andes, peasant communities are managing a diversified system of agriculture on the basis of knowledge developed over

(continued on p. 12)

Analogy in Health Education: Using the Familiar to Explain the New

by Mimi Nichter

A Kannada proverb of South India states that "the plant in the courtyard is not a medicine," meaning that what is familiar and close at hand is often overlooked as a valuable resource. This proverb is appropriate for examining a traditional communication method that has been overlooked: education by analogy.

In the field of health education, far more time, energy and resources have been spent identifying what a population *does not know or do* than in identifying what people *do know* and the way in which it is known. All too often, health educators have not understood or appreciated in-

(continued on p. 5)

Development Communication Report

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 7,000. The newsletter is available free of charge to readers in the developing world and at a charge of $10.00 per year to readers in industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Institute for International Research, in association with Creative Associates International and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in the *Development Communication Report* are those of the authors and not necessarily of its sponsors. Original material in the Report may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication
1815 North Fort Myer Drive, Suite 600
Arlington, VA 22209 USA
Telephone: (703) 527-5546
Fax: (703) 527-4661

Michael Laflin, Director
Kathleen Selvaggio, Editor
Valerie Lamont, Information Specialist
Earlington McLetchie, Librarian

Development Communication Report is produced using desktop publishing under A.I.D. contract DR-5831-Z-00-8028-00.

Indigenous Communication, continued from p. 1

An old woman has just died in this village in Kenya. She was the last person to know of a forest plant that could be used to treat epilepsy attacks. She had no children and no pupils. No one wanted to learn her skills. Now her wisdom is gone forever.

The agricultural researchers were satisfied with their farming systems project. They had successfully introduced a new rice planting technique in southern Sumatra. Instead of waiting for their fields to flood in the rainy season before transplanting their rice, farmers now plant rice seen in the fields as soon as the rains begin. The new technique, called ***gogorancah*** *in Indonesian, gives the plants a head start; a* ***gogorancah*** *crop could be harvested at least two weeks earlier than a transplanted crop. That leaves time for an extra crop of soybeans.*

The farmers didn't know, and the researchers sometimes forgot, that ***gogorancah*** *was not a new technique. It had been used for many years by rice farmers in other parts of Indonesia.The researchers had merely adapted it for the climate, soils and rice varieties of Sumatra.*

Indigenous technical knowledge is a new focus in development circles. Growing numbers of scientists and organizations are recognizing that it offers cheap, locally adapted solutions to development problems, or that it can be melded with scientific knowledge to boost productivity and living standards.

But, as the above examples illustrate, most indigenous knowledge is not written down. It is held in people's heads, passed down from one generation to the next by word of mouth. But how is this information communicated? How do people learn indigenous knowledge? Who is involved? How is the communication organized? We have few answers to these questions.

Indigenous communication includes the transmission of entertainment, news, persuasion, announcements and social exchanges of every type. While these topics are important, this article focuses on the communication of technical information, since this parallels the interest in indigenous knowledge for development.

Why Study It?

Studying indigenous communication is important for many reasons.

Indigenous communication has value in its own right. It is an important aspect of culture and it is the means by which a culture is preserved, handed down and adapted. But indigenous communication is being eroded by exogenous systems — the mass media, schools, agricultural extension, bureaucracies — endangering the survival of much valuable information.

Exogenous channels have limited range. Television and newspapers are largely confined to urban areas in the Third World. Even the most widespread exogenous channels, extension personnel and radio, fail to reach many rural people. Indigenous channels, by contrast, are ubiquitous. They are needed to convey messages to people out of the reach of exogenous channels.

Indigenous channels have high credibility. Because they are familiar and are controlled locally, indigenous channels are highly credible. Local audiences are often skeptical of the externally controlled mass media.

Indigenous channels are important conduits of change. Research has shown the importance of informal, interpersonal contacts in persuading people to adopt, or reject, innovations. Such contacts are often made through indigenous channels.

Development programs can use indigenous communication to collect and to disseminate information. Outsiders can tap indigenous channels for information on the local situation and for feedback on project initiatives. Many projects rely on indigenous channels to diffuse innovations and development messages. Some have made explicit use of indigenous channels such as folk media and village organizations. There remains much untapped potential in using such approaches.

Indigenous channels offer opportunities for participation by local people in development efforts. They allow local people to communicate among themselves and with development professionals and decision makers. Local people can retain control over local media more easily than over technology-intensive media.

If indigenous communication is ignored, the result might be inappropriate development efforts. For instance, planners failed to recognize the role of a network of "water temples" in controlling irrigation in Bali, Indonesia. This led them to introduce cropping methods and construct canals and dams that were not appropriate to local conditions.

Forms and Channels

Indigenous communication can take many different forms. Here are six.

Folk media. Folk media are the indigenous equivalents of mass media. They are used primarily for entertainment, but also to promote education, values and cultural continuity. They include festivals, plays and puppet shows, dance, song, story telling, poetry, debates such as the Filipino *balagtasan*, parades and carnivals. Many have been adapted to transmit messages about family planning, politics and other exogenous topics.

Indigenous organizations and social gatherings. Indigenous organizations include religious groups, village meetings, irrigation associations, mothers' clubs and loan associations. Apart from the formal communication they permit, such organizations provide many opportunities for informal interaction.

Deliberate instruction. Parents teach children, craftspeople instruct apprentices, elders guide young people, adolescents undergo initiation rites. Many societies have traditional, often religious, schools. Most of what we need to survive, we learn not through the occasional puppet show, or even at school or through the media, but through deliberate instruction. This is true even in modern societies. Yet deliberate instruction has received little attention from development specialists.

Records. Many societies keep formal records — written, carved, painted or memorized. South Asian treatises on animal management written on palm leaves, ancient *bai lan* scripts on leaves preserved in Thai Buddhist temples, and similar leaves containing records of land ownership and tax obligations in Bali are examples. Such records do not have to be written: African storytellers narrate memorized historical epics and genealogies at length. Proverbs and folklore are other vehicles.

Unstructured channels. Indigenous communication occurs in many other settings: talk at home and at the well, in the fields and on the road, in the teahouse and coffee shop, in the chief's house and at the market, and wherever else people meet and talk. This communication is not organized or orchestrated but spontaneous and informal. The importance of such channels is illustrated by the role of informal networks in Iranian bazaars in the overthrow of the Shah of Iran.

Indigenous communication is being eroded, endangering the survival of much valuable information.

Direct observation. Communication doesn't have to be intentional. A farmer may see a neighbor's bumper crop and conclude that the variety or technique used is good. Nor does the source have to be another person: a dark cloud tells us a thunderstorm is coming just as clearly as another person could.

The Knowledge/Communication Link

Technical information can be transmitted through both indigenous means or through exogenous channels such as mass media and schools. And the information can be based on exogenous or indigenous knowledge. So we can think of four types of communication (see table, p. 4).

Exogenous communication of exogenous information. This is the extension worker telling farmers of the latest rice variety, the school science teacher's biology lesson, and the village doctor explaining a disease to a patient in terms of germ theory. It's a necessary and growing part of all societies, and it has received the lion's share of research attention. But it's not the only form of communication, or even the most important.

(continued on p. 4)

Indigenous Communication, continued from p. 3

	Exogenous Knowledge	**Indigenous Knowledge**
Exogenous Communication	Technology Transfer	Indigenous-knowledge-based development
Indigenous Communication	Diffusion; co-opting of folk media	Cultural continuity and change

Indigenous communication of indigenous information. Just as exogenous information is communicated mainly by exogenous channels, indigenous information is transmitted almost exclusively through indigenous channels.

The study of traditional communication has fallen to cultural anthropologists.

We can think of two types of communication in this quadrant. Intergenerational communication is the passing down of knowledge from father to son, mother to daughter, teacher to pupil. Lateral communication is the spread of information among peers and from place to place.

Indigenous communication of exogenous information. A new crop variety spreads without promotion by the extension service. Traditional midwives, trained in oral rehydration therapy, teach mothers how to use this inexpensive way of treating diarrhea. A puppet show includes messages on family planning as well as traditional themes.

Two main areas cover this quadrant. Diffusion research has focused on how innovations spread through a society. This research has shown the importance of such features as opinion leadership, the importance of homophily, socio-economic status, interpersonal networks, and so forth. But most studies have looked at innovations developed by outsiders rather than by local people. We know very little about how indigenously generated innovations spread.

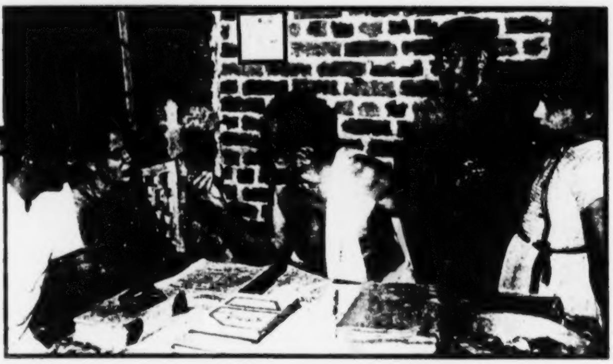
Folk media began to attract attention in the 1970s. They have been used to promote themes as diverse as family planning, agriculture and politics. But they have two major problems when used for such purposes. Though they may contain morals or substantive messages, they are primarily entertainment in the same way as are Western mass media. And audiences may resent the adaptation of traditional forms to convey development messages.

Exogenous communication of indigenous information. Indigenous information isn't often transmitted via exogenous channels, though there's great growth potential for this. One such area is represented by the growing scientific literature on indigenous knowledge and the efforts of Iowa State University's Center for Indigenous Knowledge for Agricultural and Rural Development (CIKARD — see description on p. 21). Another is farming systems research and the movement toward farmer-managed research. This allows local technologies to enter the scientific information system, and from there to filter through to the extension services or to neighboring farmers.

Another area of potential growth is using exogenous channels to help farmers to learn indigenous knowledge. Among the few examples of this in the developing world is *Minka*, a low-cost magazine for farmers in the Peruvian Andes that summarizes other farmers' knowledge. (See article, p.1) The "farm tips" pages of US farm magazines and the growing number of sustainable agriculture newsletters are First World equivalents. The potential for developing research and extension systems that draw on indigenous knowledge and farmers' proclivity to experiment is enormous. ■

Paul Mundy, from the United Kingdom, is an associate of Iowa State University's Center for Indigenous Knowledge for Agriculture and Rural Development (CIKARD). He is currently studying for his PhD at the University of Wisconsin-Madison. J. Lin Compton is professor of extension education and international agriculture at the University of Wisconsin, Madison. This article is adapted from a chapter by the authors in a forthcoming book entitled ***Indigenous Knowledge Systems: The Cultural Dimension,*** *edited by D. Michael Warren, David Brokensha and L. Jan Slikkerveer.*

Analogy, continued from p. 1



An indigenous medical practitioner uses analogies to explain the causes of illness.

Mimi Nichter

digenous health behavior and the common sense upon which it is based. Also overlooked is the use of analogy as a mode of communication. The value of this communication strategy is that rather than introducing new "bits" of information into a culture regardless of preexisting knowledge and experience, new information can be introduced in a context of existing associations, experiences and concerns.

I first became interested in the use of analogy as a communication strategy while conducting research on anthropology of health in South India. During my fieldwork, I observed the methods used by popular religious leaders, indigenous medical practitioners, astrologers and politicians in communicating to villagers. What emerged was a keen appreciation for how analogies were effectively used to include the known and familiar while locating and often encompassing the new.

Similarly, I observed a range of health and nutrition monologues between health educators and villagers. These attempts to introduce new ideas were largely ineffective because they did not address people's health concerns and were introduced without reference to local illness categories, ideas about illness causation, and beliefs about food. Villagers were asked to put aside their own thinking on these subjects and blindly accept new health ideas.

Developing an Analogy

How does a health educator begin to generate analogical messages? Appropriate analogies cannot be developed in a top-down manner. Rather, participatory research is essential to identify villagers' health concerns and their images of health and illness and to develop and test appropriate analogies. The approach draws upon a popular existing pattern of effective communication.

To provide a more structured sense of the process, six steps in framing appropriate analogies for health education are outlined below.

- Break down health/nutrition messages into underlying assumptions and concepts; i.e., identify the main point(s) of the message.
- Collect data on local health concerns, ideas about foods, and underlying assumptions and concepts of health.
- Identify points of convergence between traditional and modern thinking about health. For example, a common concern for health as a state of balance, good digestion and positive health was identified in South India.
- Collect a list of common analogies, metaphors and proverbs in the local language.
- Develop an analogy for an initial message. It might focus on similarities between local ideas and the concept being introduced. It may also use experience in one domain of life to shed light on another domain, such as comparing agriculture with health.
- Present an analogical lead-in message to a group of community members for their response. They may reject, refine, elaborate and/or generate alternative, more appropriate analogies. Linkage to local sayings, proverbs and stories strengthens the points being made. In addition, posing analogies serves as entertainment to villagers by providing an environment in which individuals can share their wit as well as their knowledge.

Nurturing Crops, Nurturing the Body

In South India, a formal nutrition education message directed at villagers was "Eat a mixed, balanced diet." Foods recommended by health workers were typically categorized into three or four groups, based on nutrient content. But the grouping of foods in this manner was not under-

(continued on p. 6)

Analogy, continued from p. 5

stood by villagers.

Foods that nutritionists group into one category are often classified by villagers in different categories that have distinct properties in accord with local beliefs about food. Research revealed that foods are classified with regard to ideas about hot-cold, lightness-heaviness, and their effect on body humors.

Initial data collection revealed the following cultural resources:

- The process of rice cultivation was well known to villagers. This process requires a proper balancing and regulation of fertilizer and water.
- Rice is the staple crop of the region and is a central metaphor for life used in daily conversation . For example, a growing child is often referred to as a developing rice stalk.
- Health as balance is an important cultural concept.

As a result, the following analogy was developed: *Just as fertilizers in the field must be balanced, so foods in the body must be balanced.*

Then, the following message was framed around a traditional metaphor for development, the growing rice plant:

> *When cultivating rice, what is necessary? Good soil, a properly plowed field, leaf manure, cow dung and ash. What happens if there is too little manure, green leaf or ash? [A discussion typically ensues about crop height, seed head size, weight, rice illnesses and overall yield.] Your body is like a field. If the proper mix of nutrients are not given to the field inside, your yield—your health—is poor and your blood weak.*
>
> *The field needs to be well prepared to cultivate a good rice crop. Preparing the field so the earth can"digest" fertilizer is like enhancing the stomach's digestive capacity so the body can take food and turn it into blood.*
>
> *Just as enough good soil is needed for rice growth in the field, so enough rice is needed in our bodies for energy and strength. To improve your crop—your health—other things are needed as well. Just as the field needs green leaf manure, so the body requires green leafy vegetables, but as in the case of fertilizer not all leaves are suitable for manure and the best leaves need to be identified in each season. Like dung in the field, the body requires strength giving foods like fish and pulses. Like ash for the field, the body requires foods which when cooked by the stomach fire provide the body with ash minerals. As in the field, if too much of one item is used and not enough of another, balance is not obtained and when there is no balance, illness may come by many means.*

This message served as an alternative to monologues on food groups presented by health staff. Once the referential framework of agriculture was introduced, it was found that it could be extended to address other nutrition education issues as well.

Negotiating Knowledge

Although associations expressed through analogy, metaphor and proverbs may not be logical in a strictly "scientific" sense, they can serve to facilitate understanding of unfamiliar concepts by grounding them in the known. The process of generating analogies is dynamic and brings the health educator into a process of negotiating knowledge with the audience. In this way, the distinction between "those who know" and "those who don't know" is blurred. This approach is a movement towards what Andre Fuglesang has termed "appropriate conceptualization" to complement appropriate technology.

As Fuglesang has noted: "Why should we expect the illiterate villager to adjust to the way of thinking of the educated man? Why should he alter his perception of the world to understand us? It is perfectly possible for an educated man to adapt to the concepts used by the illiterate villager, but he has to study them." ■

Mimi Nichter is an anthropologist and communication consultant. Presently she is the project manager of a longitudinal study on adolescent health in Tucson, Arizona. To contact her , write the University of Arizona, Department of Anthropology, Tucson, AZ 85721, USA.

The "Fertilizer Bush" Drama

by Kristin Cashman

Many approaches for sustainable, ecologically safe agriculture now being heralded by development agencies have their roots in farmers' age-old knowledge and techniques. This is true of an agroforestry method called alley farming, which is championed by the International Livestock Center for Africa (ILCA) and the International Institute of Tropical Agriculture (IITA). During 1984-88, I worked with IITA and ILCA on various on-farm research projects that introduced this method to Nigerian farmers. To encourage farmer participation, we used local theater and songs for promoting knowledge and skills. Indigenous channels of communication also allowed us to transcend cultural norms, both Nigerian and Western, that had previously limited the transfer of alley cropping to men.

The Indigenous Origins of Alley Farming

Alternating cultivation with periods of fallow — known as bush fallow, shifting cultivation or slash-and-burn agriculture — is an indigenous crop production system common in tropical Africa, Asia and Latin America. Developed over centuries from experience and observation, tropical farmers perfected this method because fallow periods are linked to soil regeneration based on the regrowth of deep-rooted trees and shrubs that recycle plant nutrients.

However, in Africa today, this method is not practical because the demands of a growing population drive farmers to shorten fallow periods, which degrades the already fragile tropical soil and leads to a decline in crop yield. At the same time, while arable land lies fallow, forested and more marginal areas are cleared for food production.

Only a few decades ago scientists recognized the validity of the indigenous bush fallow system and developed alley farming, an adapted technique that capitalizes on the beneficial features of bush fallow yet also overcomes some of its limitations. In alley farming, food crops are grown in wide rows that alternate with strips of nutrient-rich trees. Tree rows are pruned periodically, and their clippings are used as mulch, replenishing soil nutrients, inhibiting weed growth and increasing moisture retention. Tree branches and leaves also furnish animal fodder, crop staking material and firewood.

Like traditional bush fallow, alley farming is an ecologically stabilizing process. Yet unlike bush fallow, it allows farmers to defer fallow periods and extend their hold on farmland, thus increasing the variety and yield of crops.

Women's Gain

The majority of African farmers are small-scale, resource-poor and female. The adoption of alley farming can bring tremendous benefits for women. It offers a low-cost method of increasing crop yields at a time when women's traditional income sources are disappearing; it makes the most of the marginal land that women are often forced to cultivate by enriching the soil for extended growing periods; it saves women time and distance searching for firewood; and it increases the value of their livestock by providing nutritious animal fodder.

(continued on p. 8)

Kristin Cashman

Village theater troupe gives the "Fertilizer Bush" dramatic flourish.

The "Fertilizer Bush" Drama, continued from p. 7

Actors demonstrate how alley cropping provides firewood and staking material.

Perhaps most important, it enhances land tenure for women, who own less than one percent of the land in Africa even though they produce 60 to 90 percent of the food. Since women are not allowed to own land but can maintain tenure as long as they cultivate a piece of land, they often unwisely extend growing periods rather than risk losing the land by letting it lie fallow. Alley farming allows them to safely extend growing periods.

Despite these clear benefits, promoting alley farming among women in Africa faces enormous challenges. Ninety-seven percent of all extension agents in Africa are male and they largely extend alley farming to men. Extension personnel often understand little about what rural women know. The difficulty is not only reaching women, but also articulating the appropriateness of alley farming from a female farmer's viewpoint. For example, trees are considered a "male" crop in Nigeria, stemming from a colonial legacy which relegated land to men along with the belief that only landowners can plant trees.

Therefore, when extensionist described alley farming to male and female farmers with the masculine imagery of trees, it was designated as a man's technique. Women, on the other hand, did not see themselves as an important part of the process — and neither did the men.

Transforming the Tree

It made little sense to me to develop an approach to increase food production and decrease deforestation that was inaccessible to the majority of African farmers — women! Thus, I decided that our on-farm research project should make alley cropping equally available to female and male farmers.

But introducing alley cropping at the village level wasn't easy. Despite the disparity between men's and women's access to resources, their initial reaction to alley farming is often very similar. When I would encourage farmers to try planting trees on their farms, their basic response was, "You've got to be crazy! Do you think we cleared all the trees out so some white whimsy-looking woman could tell us we're doing it wrong?"

"Besides," I was often asked, "what does an alley have to do with farming?" This question was difficult to address since local dialects in Africa often do not have a word for the urban term "alley."

To overcome my frustration at being unable to get farmers, especially women, to even *listen* to an explanation of alley farming I decided to do away with the phrase alley farming. Instead I started referring to it as *igbo ajile*, or "fertilizer bush." The phrase conveyed the primary benefit of the system in two short words while removing the threat of the permanency of trees, making the practice immediately appealing. So now I could at least capture women's, as well as men's, attention.

Changing the name helped, but many villagers still could not, or would not, take time out to sit and listen to my long-winded description. I was doing too much talking! I felt more like a saleswoman than an on-farm researcher. To overcome this constraint I made use of the long-standing tradition of sharing information through stories and songs. I wrote a play called "The Fertilizer Bush," using farmers' most common questions as the basis for the script. The five-member village theater troupe, which agreed to perform the play, was amazingly adept at thinking up catchy tunes to describe the powers of the fertilizer bush.

Although my initial script was finely detailed, the troupe was too spontaneous to conform to my rather restricting Western ways. The play was never the same twice, making it all the more dramatic and just as interesting to attend, whether it was the first performance or the fiftieth. Although the troupe kept me guessing, they always highlighted the salient features and processes necessary for success, allowing the community to judge the merit of alley farming.

Performed in 13 villages of varying size, the play addressed men and women as equals. Alley farming was presented within the framework of a family squabble, where the husband tries to pass his worthless farm off to his wife while he shifts to other land. She is annoyed, but feels pressured to take it despite its low worth, lest she be left with nothing. A friendly peer arrives on the scene, with a child hoisted on her back, offering advice about her alley farming experiences. This character was deliberately cast as a woman in order to encourage women to participate.

For example, when asked how to go about planting, the alley farmer leads the couple through the steps, explaining tree spacing by using a ruler as a measuring tool. The squabbling couple tease her mercilessly for adopting Western ways. After joining them in a good laugh, she helps the couple develop a more practical measure: "Let's see . . . 25 centimeters is about the size of your foot, and the five meters between rows is roughly equal to five strides."

Sustaining the Practice

The fertilizer bush drama was a smashing success as an introductory tool for raising awareness and making alley farming appealing to farmers, regardless of gender. Many families participated in our alley cropping trials and more would have followed suit if we hadn't run out of seed. Yet further intervention is required to help adopters integrate the practice into their daily routine. We cannot expect farmers, completely naive about alley farming one day, to be expert and sophisticated users the next.

I found that farmers needed continual encouragement and advice when making the transition from the sporadic management of bush fallow to a new form of production that requires *regular* and *consistent* attention. Some raised intense personal concerns, such as women's fear of losing their land, while others ran into technical or management problems, such as to what extent prunings should be used for animal fodder vs. for soil nutrients. In response to these various problems and concerns, we established different information programs. For example, we recruited high school students to help convey practical solutions to their parents, and also established a support group, through which alley farmers could help one another with information, advice and reassurance. We found that farmers relied chiefly on other peers for a realistic assessment of the innovation.

Lessons Learned

Several lessons surfaced from this experience. First, a participatory research approach that solicits farmers' concerns, needs, constraints and skills is critical to introducing and sustaining a new innovation. Farmers' concerns should be continually reassessed at each stage of the adoption process.

Second, agricultural researchers and extensionists can make greater use of indigenous knowledge and communication skills for transferring innovations more effectively. Mobilizing these resources not only enhances communication between researchers and farmers, but it makes local people the "experts" in the innovation process, relegating the researcher to role of catalyst or facilitator.

Finally, cultural and social norms, beliefs and taboos must be dealt with actively to preclude them from retarding, or biasing the benefits of innovation. Rather than defending or creating injustice, such as the exclusion of women, cultural traditions can be carefully reshaped to drive a process of sociocultural change. The experience described here demonstrated that when an innovation was introduced in a way congruent with local socio-cultural circumstances, men and women adopted it in equal numbers.

■

Kristin Cashman is a Research Associate with the Center for Indigenous Knowledge for Agriculture and Rural Development. For more information, contact her through CIKARD, 324 Curtiss Hall, Iowa State University, Ames, Iowa 50011, USA.

The phrase "fertilizer bush" conveyed the primary benefit of the system in two short words.

Tips for Documenting and Transferring Local Knowledge

There is growing agreement that there is an urgent need to safeguard and reaffirm indigenous knowledge. Yet, much systematic work must be done to locate, document and disseminate indigenous knowledge before it can become part of the body of development solutions. Furthermore, tapping into the vast stores of indigenous knowledge is not always easy. Local experts seldom realize how much they know, so direct inquiry may be difficult. They usually did not acquire this knowledge in a formal school setting, but at their mother's or father's knee, or through interaction with other local experts. Sometimes, too, such knowledge is considered the "property" of a privileged or professional few who may not be eager to share it.

The process of gathering the knowledge is often as critical as the final product. As Anil Gupta of the Indian Institute of Management notes, "It is not just the . . . documentation of local innovations which is important. The process of enquiry, interaction with the farmers individually and in groups, search for new conceptual relationships among old variables, feedback to the farmers . . . are also important."

Outlined below are preliminary guidelines for acquiring and preserving indigenous knowledge, drawing upon anthropological methods of ethnoscientific and participatory rural appraisal techniques.

1. Identifying the information

- Assemble an interdisciplinary team involving the relevant technicians, biological and social scientists (social psychologists, anthropologists, linguists, physicians, biologists), and persons completely fluent in the local language and familiar with local customs. The team must include local experts.
- Identify key informants. Survey methods might not be useful since different individuals in a community perform different functions. Rather, locate those who have the most knowledge about the subject, e.g. village elders, healers, midwives, farmers, fishermen or hunters.

2. Documenting local knowledge and practices

- Elicit, in the local language, names of items or categories in the subject of interest, e.g., types of soil systems, weather patterns, herbal remedies, etc. Note indigenous terms and forms of categorization. This task may require the expertise of a linguist skilled in posing controlled questions and semantic organization.
- Interview the local experts, exploring the practice or knowledge on several dimensions: its ecological context (e.g., what soil, climate, or seasonal conditions exist); the historical context (e.g., what event or circumstances led to the adoption of the practice); the socio-economic context (e.g., who uses the practice); and the communication context (e.g., how the person first learned about the practice and how he/she shares it with others?).
- Observe the application of the practice, tool, or remedy and describe it, taking note of its unique features, how it differs from Western methods, conditions under which it is used most often or its effectiveness is increased, and the user's assessment of its limitations.
- Collect and label samples of materials, where relevant (tools, plants, seeds, roots, potions, recipes, etc.)
- Use standard nomenclature or conventions for documentation, if they exist. In fields such as ethnobotany, protocols are well developed and may be obtained through museums, research institutes or universities.
- Where visual aids might facilitate understanding, use cameras, videotape or illustration for recording, with the permission of the local experts.

3. Transferring local knowledge

— Among other local experts and users

- Share findings first with the providers of knowledge, explaining why they have been collected and how they can contribute to scientific theory. Seek their permission to use the knowledge outside the local setting. Where patents or copyrights are advisable, offer suggestions for acquiring them.
- Build on and strengthen existing village-level communication networks, e.g. agricultural cooperatives, associations of traditional healers or veterinarians, marketplace discussion, women's or youth organizations, local drama or entertainment groups, etc.
- Apply knowledge to ongoing activities to demonstrate its utility, where possible. Mobilize local organizations to participate in such demonstrations.
- Where appropriate, use existing radio programs, publications or other mass media, through which local experts can report and discuss their own practices and innovations and ask questions of one another. Likewise, researchers and extensionists could share useful findings of their own.

— To researchers, extensionists and other professionals

- To the extent possible, translate local concepts and practices into Western scientific concepts and terminology, e.g., convert local measurement units into metric units; plant or disease names into universal scientific Latin; and local beliefs into the Western equivalent.
- Help organize on-site research that gives local experts a significant role in the design of experiments and allow them to suggest modifications, according to their experience, beliefs and needs. Scientists and local experts can mutually collaborate in implementing each other's solutions.
- Obtain scientific explanation or analysis of a local skill or technique, reasons for its success, and how it might be improved upon or modified through modern scientific methods.
- For both ethical and scientific purposes, always acknowledge by name the source of knowledge or innovation, be it a single villager or group, especially in formal research papers, publications and conferences.
- Take steps to ensure that valid local knowledge and practices are integrated into training programs and materials for extension agents, graduate and post-graduate curriculum for scientists, and education programs for researchers and media specialists.
- Encourage the integration of local experts into formal extension or outreach programs, or arrange collaboration between Western-style and traditional practitioners.

Sources:

Gupta, Anil. "Documenting Farmers' Innovations." Center for Management in Agriculture, Indian Institute of Management, Vastrapur, Ahmedabad 380-056, India, 1990.

Gupta, Anil. "Linkages for Lateral Learning Among Farmers, Scientists and Extension Workers." 1989. International Service for National Agricultural Research, PO Box 93375, 2509 AJ The Hague, Netherlands.

McCorkle, Constance, et al. "A Case Study on Farmer Innovations and Communication in Niger." August 1988. Available from the Academy for Educational Development, 1255 23rd St., NW, Washington, DC, 20037.

Special thanks are extended to Wachiiri Kamoji, a private consultant and former lecturer with Kenyatta University in Nairobi, for his contributions to these guidelines.

Why Document Indigenous Knowledge?

"When a knowledgeable old person dies, a whole library disappears."

African proverb

"Nowhere do people live in a state of ignorance about the world around them. Not only do local people know 'a lot,' in certain domains they often know **more** *than Western or Western-trained scientists."*

Constance McCorkle, "Toward a Knowledge of Local Knowledge," *Agriculture and Human Values* (1989)

"Unlike modern science which is recorded in books, films, computers, etc., indigenous local knowledge is an unwritten body of knowledge. There is no systematic record to describe what it is, what it does, how it does it, means of changing it, its operations, its boundaries and its applications. . . . It is held in different brains, languages and skills in as many groups, languages, cultures, and environments. "

David Atte, "Indigenous Local Knowledge as a Key to Local-Level Development," Unpublished paper (1989)

"[The challenge] is to extensively document and disseminate the existing body of indigenous local knowledge resources in each country and locality. Evidence of where and how it has worked and where it has been successfully modified to meet present needs must be widely publicized. Once the elites know this, they will develop respect for rural people which will reduce the paternalism born out of ignorance and communication gap."

David Atte

"[One] consequence of the decline of indigenous local knowledge is the wastage of tremendous resources of native talent which can be used to amplify and accelerate research, planning and development. [Another consequence] is the inefficient allocation of resources and manpower to inappropriate [development] strategies which have done little to alleviate rural poverty."

David Atte

"What we establish now as modern knowledge. . .will, in 20 years, be indigenous knowledge, for this include accumulation of past experience. You cannot fix indigenous knowledge; it has to evolve."

Thomas Odhiambo, Director of the International Center of Insect Physiology and Ecology, Nairobi, in an interview with ILEIA (1990)

Reinforcing Campesino Wisdom, continued from p. 1

The caption to this illustration from **Minka** *reads: "Research centers, in their eagerness to serve farmers, adapt foreign technologies that are ill-suited to farmers' conditions."*

***Minka**, no. 25, p.8*

thousands of years. In valleys and on steep mountain slopes, they raise livestock and grow tubers, cereals, vegetables, fruits, grasses, shrubs and trees. Andean agriculture not only sustains the campesino families, but also helps to provide food security to the cities. And with more than 200 native varieties of potato, along with diverse strains of other crops, the Andes region has the genetic potential to become the seed basket of the world.

The campesino producers of the highlands are nonetheless beset by problems. The average family has access to only one-quarter of a hectare of land (approximately three-fifths of an acre), and this is often distributed among several small plots at different altitudes. They do not necessarily own their own tools or draft animals. Beyond this, they must cope with the effects of a supposedly more advanced system of agricultural management based on the indiscriminate use of chemical fertilizers and pesticides. The result is toxic contamination and eventual loss of soil fertility. Extension systems have little to offer beyond creating further dependency on these modern methods and packaged tools. Meanwhile, valuable indigenous knowledge is slowly lost.

At Grupo Talpuy, we assert that Andean indigenous knowledge in agriculture can provide the basis for constructing an Andean technological system that allows communities to produce more, at lower cost, without damage to the environment and without external dependency. Modern scientific knowledge has a role to play in this process. The key is to use it to help explain and develop Andean farmers' *own* technology. We work to uncover the scientific basis of popular Andean knowledge, while at the same time popularizing other types of scientific knowledge.

Grupo Talpuy was founded in 1979 in Huancayo, Peru, and works principally among the peasant communities of the adjacent Mantaro Valley. Non-profit and non-governmental, the group focuses on communication and training. The members are professionals with extensive experience and commitment to rural development in the Andes. A special role is played by campesino experts, who contribute their technical knowledge of agro-industry and forestry, along with an understanding of the socio-economic and cultural make-up of campesino communities. Through dialogue with our staff and through our magazine, they are able to share their experiences and knowledge of agricultural techniques with other campesinos. Since they also identify information needs and gaps in their knowledge, we also draw upon scientific literature and work with scientific advisors in rural technology and development to bridge this gap.

The first step is to demonstrate that indigenous practices often bring results equal or superior to those of commercial agriculture, and without ecological degradation or dependency. The second step is to develop these practices with contributions from Western science, based on needs the campesinos themselves identify.

***Minka**, no. 25, cover*

A Magazine for Campesinos

The group's central activity is the publication of the magazine *Minka*, which comes out three times a year. *Minka* — the term is Andean for cooperative group labor — is aimed primarily at local campesinos, but it is also read by professionals, technicians and students, and by experts from regions and countries outside the Andes. Approximately 6,000 copies of each issue are distributed. The magazine deals with problems of paramount concern to the Andean highland farmer. Each issue focuses on a single theme, such as "harvesting and storing crops," "controlling plagues and pests," or "irrigation the Andean way."

Three aspects of *Minka* are of primary importance in communicating with its campesino readership: the text, the graphics, and the use of the native language, Quechua.

The Text. Communicating with campesinos through the written word involves a complex process of systematization and style. The results of research and productive practice must be translated into language accessible to the Andean peasant. To do this, we use popular expressions rich in meaning and symbolism, and base accounts on the peasant's own experiences. The *Minka* style employs short phrases, sentences and paragraphs, and exclamatory titles. Articles propose alternatives, make suggestions for reflection, comparisons, etc. The first-person plural is often used. It is written in a simple style, but the resulting texts are never simplistic.

Although many campesinos are only barely literate, the magazine is distributed to literate farmer promoters, who read and use the illustrations to explain the content to fellow farmers. The magazine is also used in schools, and children are encouraged to read it to their parents.

The Graphics. Many of these same criteria hold for the use of graphics. The artists, many of them campesinos themselves, are deeply familiar with the Andean psyche, culture and value systems. They interpret and systematize the written messages to create the art that accompanies and supports the text.

Given the low levels of literacy, graphics play a very important role. The artwork helps the reader decode the messages and reinforces the messages and the magazine's cultural identity. Original drawings are created for each issue, including the diagrams and small designs. The magazine's format is based on detailed planning of every space. The colors used on the cover, the size of the type, the titles, etc. are all selected to correlate with the content and theme of the magazine. The result is a carefully crafted melding of textual and visual media.

The Language. Use of the native language, Quechua, provides the foundation for validating Andean culture. Our language must be used for diverse forms of expression, going beyond the stories, myths and legends, which are its commonly accepted uses among the larger population. The process of "revalorizing" and developing the language involves using it for daily activities related to production, technical management, and social organization.

Each article in *Minka* is presented first in Spanish, followed by a Quechua summary. Quechua terms are used together with their scientific equivalents, helping the campesinos to understand their place in a larger world of shared knowledge. In an article on pests affecting the potato plant, for example, the different infestations are identified first by their popular name, then by their scientific name — e.g. *kutri-kutri* (Epitrix sp.); *shacra* (Premnotrypes sp.); *polilla* (Phthorimaea operculella). Each issue also includes a glossary of technical words in both Spanish and Quechua. Thus the native language acquires value for practical daily use.

Knowledge Returned to Its Source

The research and practice we use to uncover indigenous Andean knowledge are based on a methodology of communication and training. It incorporates the following principles:

- Information needs and topics for *Minka* are developed jointly with campesinos, who are in charge of the process. Campesino groups participate through their families and communities. The campesino's small plot of land is the basis for analysis, experimentation and validation of farming methods.
- The Grupo Talpuy team includes an agronomist, forester, veterinary technicion and two Quechua promoters. We, the technical resource people, act as advisors and motivators.
- The values of solidarity, creativity and critical reflection underlie our relations with campesinos.
- We attempt to persuade the individual farmer to

The Minka caption reads: "Influenced by commercial advertising, farmers use damaging chemical insecticides."

***Minka**, no. 27, p. 22*

BEST COPY AVAILABLE

Reinforcing Campesino Wisdom, continued from p. 13

adopt solutions and to continue using them. Furthermore, we work to disseminate the practices throughout the entire community as well as throughout the entire ecological region.

- Since materials distributed free of charge are assumed to have little or no value, the magazine is sold to campesinos at a nominal fee, not given away.
- We contribute to the development of an Andean science.
- We strive for global, sustainable changes in agricultural practice.

In sum, Talpuy is based on an anthropological/technical approach. This does not mean that we all become anthropologists or technicians, but to produce *Minka* we must have an Andean social and technological consciousness. We must understand the integrated and interrelated nature of scientific knowledge and of daily life. *Minka's* contribution reaffirms what others have said: even the most valuable and groundbreaking studies have no worth or meaning until they are translated into the people's language and returned to the source where they were obtained.

■

Raúl Santana Paucar is Coordinator of Grupo Talpuy and Gloria Miranda Zambrano is managing editor of ***Minka.*** *For further information, write them at Grupo Talpuy, Apartado 222, Huancayo, Peru. Translation and editing of this article was conducted by Catherine Sunshine, with additional insights and editing by Constance McCorkle.*

Farmers in the Know

Small farmers in Niger command detailed knowledge about cultivation techniques, seeds, crop protection, and environmental conditions. Much of this knowledge had been passed down from elders and through multiple social networks. But far from resisting modern innovations, farmers tend to experiment extensively with new approaches that they learn about through a variety of sources. What's more, they exchange research results with one another, usually outside of the formal agricultural research and extension systems.

These are the major findings of a 1988 study carried out by the Communication for Technology Transfer in Agriculture project, sponsored by the US Agency for International Development. As part of the study, researchers produced 20 mini-case studies documenting Nigerien farmers' adoption or rejection of agricultural techniques, some age-old, others new. Below are highlights:

- To prevent rats from feeding on cereal stocks, farmers had usually sprinkled chemicals around the granary — a dangerous and expensive solution. Several farmers learned about a better approach during trips to other regions. By placing a large basin of water into a hole near the granary and baiting its lip with bran, rats would fall into the container and drown. When villagers observed this simple technique, they all began to use it.
- One farmer learned a natural fertilizing method from a Moslem holy man. He placed manure directly into seed pockets, so that termites would break down the "burning" effects of the manure on seeds. After the first rain, he reopened pockets and planted seeds dressed in insecticide, which wards off termites. The new technique is cheaper and at least as effective as commercial fertilizers.
- The president of an agriculture cooperative discovered a promising local variety of millet seed. Chatting informally with project researchers, he pointed out the grain's superior qualities and speculated on its prospects. An older farmer on the periphery listened carefully to the discussion. Later, he silently gathered out of the sand all the loose grains that had fallen out of the open sack and stored them in his pocket — presumably for planting.

Aside from studying farmers' practices, researchers were able to identify a range of communication channels through which they exchange information. As the above examples suggest, they depended mostly on interpersonal and group contact. An influential role was played by respected village elders and by "innovators" — generally older men who traveled widely. Peer groups such as farmer cooperatives and youth groups were equally important. "Farm talk" was also commonplace in marketplaces, mosques, at planting and harvesting work parties, or ceremonial occasions such as funerals. The mass media, primarily radio, appeared to be mainly useful for keeping farmers up to date on climatic conditions and market prices.

Ironically, Nigerien farmers generally had a negative view of agricultural extension services. They tended to ignore extensionists' recommendations or adapt them according to local conditions, their normal practices, or their financial and technical capabilities. Several case studies illustrated farmers' rejection of innovations introduced by the extension service, because they were either inferior to local solutions, too expensive, or went against traditional practices. As one farmer remarked, "The extension service is not honest because it refuses to work with the realities of our village."

Based on "A Case Study on Farmer Innovations and Communication in Niger," by Constance McCorckle, Robert H. Brandstetter and Gail D. McClure (1988). Available for US $10 (free to readers from developing countries) from the CTTA project, Academy for Educational Development, 1255 23rd St., NW, Washington, DC 20037, USA.

Challenging Tradition in Nigeria

by K.E. Supriya

Editor's note: Not all traditional beliefs or practices are worth preserving. Some can be harmful to human health or perpetuate social and economic injustice. The experience below relates how traditional health care providers are working to reverse the long-standing practice of female circumcision.

For centuries, parents in regions of Nigeria had called in the *olola* (circumcisor) to alter or remove parts of their daughters' genitals, in the belief that this would prevent them from becoming promiscuous. Yet this ancient custom caused girls tremendous physical suffering, ranging from shock to blood loss, infection, and increased susceptibility to AIDS — not to mention emotional and psychological trauma. Nevertheless, female circumcision was infrequently discussed and rarely challenged, especially by "outside" health organizations that could be accused of meddling in cultural values and traditions.

Illustration from campaign booklet shows mother refusing to let her daughter be circumcised.

However, a communication project is helping to change this deeply entrenched practice — and using traditional media and traditional health care workers to do so. Since 1987, the National Association of Nigeria Nurses and Midwives (NANNM) has led an effort to oppose female circumcision, as well as other harmful traditions such as early marriage, taboos surrounding pregnancy and childbirth, and scarification (bodily cuts that function as ethnic or tribal markers). The program involves about half of NANNM's 60,000 members, made up of nurses, midwives and traditional birth attendants, who sometimes performed circumcision operations. NANNM has received technical assistance and financial support from the US-based Program for Appropriate Technology for Health and the Population Crisis Committee.

The objectives of the communication campaign are two-fold: to persuade nurses and midwives to halt the harmful practices, and then to deploy them to influence communities to do the same. Through awareness workshops at the national and the state level, NANNM members were made aware of the harmful health consequences of female circumcision and other traditions. They also learned to conduct focus group discussions in order to assess women's knowledge, beliefs, and practices.

Interestingly, when they returned to communities, they found that focus groups offered women an opportunity to raise "taboo" topics such as their loss of sexual pleasure after circumcision — and to express deeply felt emotions. "The project organizers were surprised at how angry women became when they realized that circumcision was unnecessary," says Susan Rich of the Population Crisis Committee. "They found that they could harness this anger to get women to act as advocates for the eradication of the practice — like new converts."

Booklets, leaflets and videos were then developed and pretested prior to use in community-based activities. Communities responded by developing media with local nuances and messages. For example, one traditional chief designed a dress with a decorative motif of tatoos and bodily cuts. By wearing the dress, women could symbolize their entry into womanhood without having to endure the actual tattooing and scarring. In some states, local theater troupes and nursing students wrote and performed plays and songs. One drama series titled "Why?" explored the trauma of circumcision and suggested steps for its eradication. Local artists carved models of female genitalia before and after circumcision.

As a result, silence no longer shrouds the practice of female circumcision. The topic is now widely debated in health talk shows on national television and women's magazines. There has even been demand for talk show reruns, and states not targeted for the campaign have requested inclusion.

Perhaps most important, the project has demonstrated that it is possible to challenge culture and tradition rather than accept them as given, when such practices are oppressive to women or other groups. The usual objection that such initiatives "impose" outside values or beliefs was avoided because African women themselves wanted to eradicate the practice and sought outside assistance. Community women became some of the strongest opponents of circumcision. Rich remarks, "The emotions of women who wept in pain and anger at what they were forced to experience — it was one of the most powerful scenes I had seen in my whole life."

K.E. Supriya, a graduate student in communication at the University of Illinois, was a summer research intern with the Clearinghouse on Development Communication. For more information about the project, contact the Program for Appropriate Technology for Health, 1990 M St., NW, Suite 700, Washington, DC, 20036. Telephone: (202) 822-0033.

Sacred Messages for AIDS Prevention

Yana[illegible] goddess of [illegible]

Oliveira Filho

by Jane Galvao

"The spell cast by Oxum [the chief deity] turned blood into one of the most well-known symbols of Candomblé: the red parrot feather. The importance of this symbol is so great that novices, during their initiation ceremony. . . wear a red feather on their forehead.

"In Candomblé, blood is considered a main source of sacred power. For this reason, great care must be taken when coming in contact with it. Some rites require the use of cutting instruments, such as knives and razor blades. On these occasions, bloodiness can occur, which might result in contamination of someone."

Thus warns a newly released booklet that uses the concepts and practices of traditional Afro-Brazilian religion to introduce information about AIDS. The Portuguese-language booklet is directed at religious leaders of Candomblé, a traditional Afro-Brazilian spirit cult that traces its origins to the Yoruba people of western Africa.

Candomblé was introduced to Brazil by slaves shipped from Africa, but generations of contact with Europeans resulted in a fusion between this traditional religion and Catholicism. Religious activities include private daily obligations and public, all-night dancing ceremonies, during which initiates appeal to saint-like divinities, called *orixás*, for guidance.

Believers accept the idea that *orixás* return to earth through mediums to offer humans medical remedies or other material assistance. Candomblé priests and priestesses are often consulted by people afflicted with illness, sometimes after Western medicine has failed to provide a cure. They seek to cure not only the spirit, but also the body.

Candomblé and Umbanda, a close variant practiced in other parts of Brazil, are the most widely observed forms of religion in the country. It is commonplace to hear that "everyone in Brazil is Catholic," followed by "yet most are also believers in Afro-Brazilian religion." However, quantifying this statement is difficult. Comparisons of the number of religious centers provide a clue. The number of Catholic parishes in the entire country is estimated at 19,000 but, according to various counts, in only three of Brazil's largest states (excluding Bahia, the most "African" state) there are more than 55,000 Afro-Brazilian religious centers: 30,000 in Rio de Janeiro, 16,000 in Sao Paulo, and 11,700 in Rio Grande do Sul.

Afro-Brazilian religion is therefore an important part of Brazilian identity and culture. Unlike Christian religions, however, its force is not manifested in institutional forms, such as formal mass media, schools, hospitals, etc. In fact, official circles of the government and the Catholic Church have historically looked askance and even repressed these religions, causing many believers to conceal their beliefs and activities.

An Arc Across Two Cultures

Religious Support Against AIDS, known by its Portuguese acronym ARCA, specializes in building bridges — we like to think of them as arcs — between the religious and secular sectors in Brazil around the prevention of AIDS. Our work consists of consciousness-raising and education around the social and psychological aspects of the disease, in order to be more effective in combatting the epidemic and the prejudice against those who suffer from AIDS. ARCA is a project of the Institute for Religious Studies, a non-profit organization founded in 1970 that promotes social improvement through religious and cultural activities. Among the group's other projects are training and technical assistance to grassroots Christian communities, a school for street children, and assistance to the National Network of Prostitutes.

In May 1989, we sponsored a meeting involving Candomblé priests and priestesses from the state of Rio de Janeiro. This event followed similar meetings held with Catholic and Protestant groups and a major regional study session in 1988, "The Latin American Churches' Inquiry on AIDS," supported by the World Council of Churches. The purpose of the meeting with

Candomblé religious leaders and traditional healers was to explore what they were doing in relation to AIDS and how we at ARCA could help them. We recognized that they had access to the poorer segments of the Brazilian population and also had knowledge of traditional cures and medicinal plants.

The event exceeded all expectations. The Candomblé leaders took part with great interest, relating cases of AIDS patients they had treated and calling for additional information. They specifically requested that we produce educational materials on AIDS that could be used in their communities.

However, we foresaw several difficulties. One was that the lack of public channels of expression and the emphasis on private ceremonial rites might raise suspicions among believers about our motives and goals. There was also the danger of stigmatizing Candomblé followers, since there is a widespread prejudice that many practitioners of these religions are homosexual — leading people to fear that there is greater risk of contracting the HIV virus at Candomblé religious sites. These difficulties made the priests and priestesses understandably standoffish and wary of support from outsiders.

ODO YA! Tales from Candomblé

Nevertheless, we accepted the challenge and sought the assistance of an anthropologist plus a historian/religious leader who is an authority on the *orixá* divinities. The work began with the preparation of a basic text, which underwent several revisions. The final versions include contributions gathered from Candomblé priests, priestesses and healers. We decided to select well-known tales from the Candomblé tradition and related them to general information on health and, more specifically, on AIDS. The idea was to use religious-cultural traditions as a frame of reference for understanding new concepts and practices. We secured financial support for the project from Swedish and Dutch private foundations and from the World Health Organization's Global Program on AIDS.

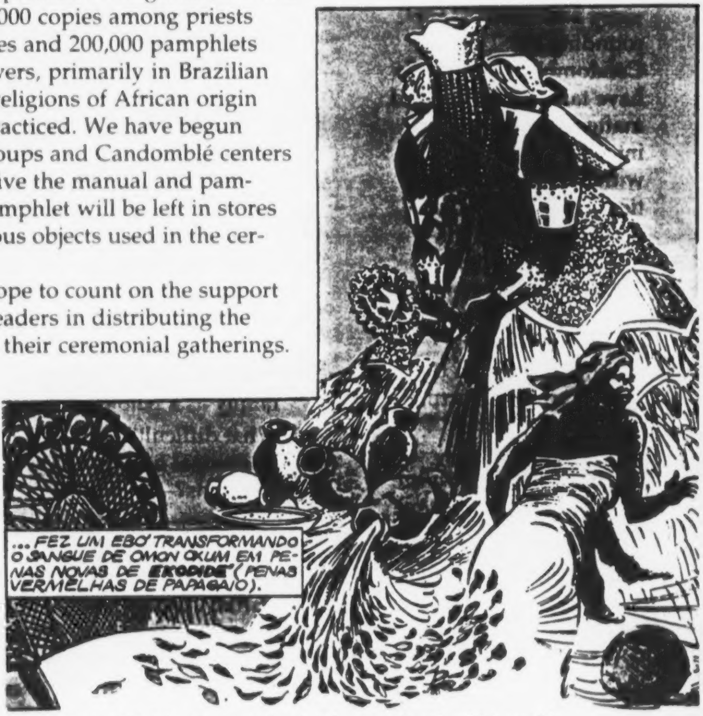
The three Candomblé stories are presented in comic strip form, featuring graphics and captions. This medium was chosen in order to capture language traversing both written discourse and the narrative oral tradition, and to reproduce the visual richness of Afro-Brazilian symbolism. A famous creator of the art form was asked to illustrate the strip.

In preparing the material, we came to appreciate the importance of inter-disciplinary teamwork. Team members included the anthropologist and historian mentioned above, religious leaders who participated at our meetings, graphic artists, two educators, and the state health secretariat's coordinator for AIDS programs.

The manual, titled ODO YA! — a greeting to Yemanjá, the Candomblé goddess of the sea — was finished in August 1991 and released in September. Altogether, we will distribute 50,000 copies among priests and priestesses and 200,000 pamphlets among followers, primarily in Brazilian cities where religions of African origin are widely practiced. We have begun surveying groups and Candomblé centers that will receive the manual and pamphlet. The pamphlet will be left in stores that sell various objects used in the ceremonies.

We also hope to count on the support of religious leaders in distributing the pamphlets at their ceremonial gatherings. Religious leaders who know about the project are already requesting that we speak on their grounds. Besides bringing together followers for religious

Oliveira Filho


...FEZ UM EBÓ TRANSFORMANDO O SANGUE DE OMON OXUM EM PENAS NOVAS DE EKODIDE (PENAS VERMELHAS DE PAPAGAIO).

The ODO YA! comic book relates a Candomblé parable about the transformation of blood into red feathers.

rites, these sites are places where strong community relationships are formed and sustained.

Looking Ahead

We are not yet certain whether the use of the manual and pamphlet will bring about changes in behavior if, for instance, Candomblé practitioners will disinfect the razor blades used in certain ceremonies. Following their distribution, we will conduct an impact evaluation in the state of Rio de Janeiro.

Still, ODO YA! is a bold experiment, given the history of controversy and mistrust surrounding the Candomblé religion. We have talked about sacred matters, we have even interfered to an extent with these sacred traditions. At the same time, the possibility of dialogue with a religious tradition that is so rich in symbolism, so popular and yet so marginalized from the formal power structure in Brazil excites us. ■

Jane Galvao, a Brazilian anthropologist, is Executive Secretary of the ARCA project. Translation of this article from Portuguese was done by Antony Zinesky. For more information, contact: ISER, ARCA Project, Ladeira da Gloria 98, 22211 Rio de Janeiro, Brazil. Tel: (55-21) 265-5747. Fax: (55-21) 205-4796.

An African Traditional Healer Speaks Out on AIDS

Editor's note: Halfway around the world from Brazil, traditional healers in Zimbabwe are also playing an active role in AIDS education and prevention. Last year at a workshop for African NGOs involved in AIDS prevention, participants collectively interviewed Tarisayi Mark Musara, National AIDS Coordinator of the Zimbabwe National Traditional Healers Association. Below are excerpts.

Q: How were you trained as a traditional healer?

A: In Zimbabwe, we don't train traditional healers. To become a traditional healer you must have talent.... This inborn talent is upgraded.... In Zimbabwe, we are making healers aware of AIDS as part of upgrading their knowledge and abilities.

Q: How does a traditional healer work on HIV and AIDS?

A: First of all, HIV and AIDS are not traditional problems... it's a foreign disease. But ... all the traditional healers have put their heads together for an AIDS awareness campaign. Why? Because at first there was a lot of resistance in our community when people from Western cultures said AIDS has no cure. But now we know AIDS has no cure, except to change our behavior.

Q: Are traditional healers involved in counseling people about AIDS?

A: In Zimbabwe, two-thirds of the healers' work is counseling; they are not only treating the physical problems of patients. So we're polishing their counseling skills.... When a patient comes back to a healer in the home village, we call the family and the problem is explained to them.... Confidentiality is kept by the family as a whole.

Q: What difficulties did you have in getting traditional healers to advocate the use of condoms?

A: The problem is not with getting the traditional healers to use condoms, it is with getting the people to use them. We started ... with the view that we should break this resistance. Then we taught traditional healers how to use the condoms and the next question that came was, "Can you make a female condom?" .... The traditional healers are keeping boxes of condoms, especially for those people who are already infected.

Q: There are certain traditional practices which may increase the spread of HIV/AIDS, like polygamy. Are traditional healers trying to discourage polygamy, and if so, how do communities react?

A: Yes, there are a good number of aspects in our culture that may cause the spread of AIDS, such as polygamy. This is why we have embarked on the campaign ... where we cover the dangers caused by those activities and we totally discourage them ... We don't say "don't do it," but we give suggestions and they choose what they should do.

Q: What do you tell people about HIV infection through razor blades? *[Note: Razor blades and bleeding are used in some traditional healing practices.]*

A: We advise the patient to bring his own blade, or the traditional healer will have many on hand that he will sell to the patient. Also, we have a new method of spreading the medicine first and then cutting with the razor blade.

Q: We hear that there is underreporting of HIV infection in Zimbabwe because many people with traditional beliefs believe in going to traditional healers.

A: At the moment, the project is to assist the government to increase the number of cases that are being treated. That is, the traditional healer is taught the signs and symptoms of AIDS.... He should then refer suspected cases to the government clinics. ■

Excerpted from ***Tradition and Transition: NGOs Respond to AIDS in Africa****, edited by Mary Anne Mercer and Sally J. Scott (June 1991). Available for US $5 from HAPA Support Program, Johns Hopkins School of Hygiene and Public Health, Institute for International Programs, 103 E. Mount Royal Avenue, Baltimore, Maryland 21202, USA. Make checks payable to Johns Hopkins University.*

Weaving Together Folk Media and Mass Media

Principles into Practice

by Victor T. Valbuena

In the early 1970s, folk media attracted attention as a viable alternative and/or complement to mass media in promoting development concerns such as health, family planning, and agricultural productivity. Experimentation during this period, and a review of the role of folk media in national independence movements, helped program implementors and communicators identify major issues in harnessing the potential of folk media for development campaigns. These included concern about the destruction of the original folk media form; resentment of artists and audiences against the adaptation of traditional forms to convey development messages; and objections by local community leaders and politicians to highlighting sensitive issues in folk media presentations. However, these problems have been minimized through an enlightened understanding of the form, function and context of folk media, active participation of artists and audience in the development of communication messages, and providing local officials the "right to reply."

Communicators have also experimented with the use of folk media in conjuction with more modern mass media. Can folk media be effectively integrated with mass media? Yes, provided some basic principles are followed.

Select the media form carefully.

Select a folk media form that is widely known, is flexible, and has some characteristics similar to mass media. Not all folk media can make the transition to mass media.

In the Philippines, the *balagtasan*, *balitao* and *bantayonon* are types of poetic jousts that have traditionally attracted large audiences who *listen* to the protagonists' arguments. They are essentially oral media and, as such, can easily be used on radio. They are also flexible: as forms of debate, they can accommodate almost any issue. They can be lengthened or shortened depending on time constraints.

The *balagtasan* and its derivatives still feature regularly in the programming of both Philippine government and commercial radio stations. From 1987 to 1990, a project sponsored by the United Nations Environment Program used the *balagtasan*, both in original form in public performance and in adapted form for radio, to demonstrate the feasibility of using folk media to promote environmental conservation. The radio adaptation was essentially a shorter version, to conform to limitations of air time. It did away with the verbal diversions and sub-arguments usual in community performance, and concentrated instead on main arguments. This more focused presentation helped clarify the issues for the audience.

In Sri Lanka, the Mahaweli Community Radio has successfully adapted part of the *thovil* ritual in its regular programming. *Thovil* is a traditional devil-exorcism ritual performed mainly in the southern part of the island. In the course of the ritual, there is cross-talk between the exorcists and the accompanying drummer. Since this cross-talk is oral, it lends itself well to radio adaptation.

The usual scenario is a dialogue between the exorcist, who identifies a social problem and poses a solution, and the drummer, who presents the popular view of the problem. At the end of the argument and counter-arguments, both arrive at an understanding on how to exorcise the "demon." Thovil's flexibility allowed contemporary social evils such as malaria, diarrhea, alcoholism, etc., to be symbolized as demons in the radio adaptation.

Make sure the adaptation strengthens the media form.

Adaptation for mass media need not alter or destroy the folk media form. In fact, it can help preserve it and effectively assist in cultural development.

Since 1986, the Guirandurukotte Community Radio (GCR) in Sri Lanka has been

(continued on p. 20)

Martin Moulton

Weaving Folk Media, continued from p. 19

broadcasting *kavikolaya* as a means of social control. The *kavikolaya* is a folk verse traditionally used to report social deviance - suicide, thefts, rapes, and other crimes. In its original form, it is printed as a pamphlet, read aloud in a public place and sold to interested listeners. At GCR, the *kavikolaya* is used for the same purpose, i.e., to report and/or comment on violations of social norms. It is prepared in its original form, except that it is presented over radio rather than in a public setting.

The form is actively preserved and enhanced by GCR's encouraging members of the audience to write and present their own *kavikolaya*. This is possible because, again, the form is very versatile; it can accommodate any topic or issue, and it does not require sophisticated skills to produce. Listeners with a comparatively low level of education can prepare them. In fact, at GCR, all aspects of the *kavikolaya* program are handled by villagers themselves. Most villagers send their *kavikolaya* in verse, while others tell their story to the producer, or mail their story in prose. Between 1986 and 1988, over 500 *kavikolaya* were broadcast over GCR.

> *Adaptation of folk media for mass media can help preserve it and effectively assist in cultural development.*

Also in Sri Lanka, the Mahaweli Community Radio (MCR) actively records folk songs during production visits to villages and uses them in broadcasts. Those with flexible lyrics are used to carry development messages. The rest are used in cultural programs. This practice has resulted in the preservation of previously unrecorded folk music and has contributed to increased awareness of local culture. To ensure wider dissemination, MCR sells the songs on audio cassette tapes.

In Malaysia, the government actively promotes various folk media songs, dances, choral recitations, folk drama on government radio and television stations as a means of conveying social messages and strengthening cultural identity. This practice has not been lost on the implementors of an environmental communication project implemented by the Asian Mass Communication Research and Information Center (AMIC) and the Federation of Malaysian Consumers' Association. The project is currently using *dikir barat* (choral singing) and *bangsawan* (folk drama) in village performances as well as on radio and TV, to communicate environmental conservation messages, and to promote these media forms as means of reinforcing Malaysian cultural identity.

▮ Relate the message to local needs.

Folk media have sociological roots: their use and adaptation should be related to local events and their production consistent with the needs of the social environment.

The Guirandurukotte Community Radio broadcast area covers Sri Lankan villages whose residents are settlers from other parts of the country, and who have experienced stress following resettlement. This stress has manifested itself in alcohol consumption, sexual deviancy and petty crimes. At GCR, the *kavikolaya* was deemed an appropriate folk medium for reporting these incidents, with a view to restoring social control. The station saw the need to open channels for listeners to voice their concern about social problems and contribute toward social justice.

In the 1970s and 1980s, Filipino *zarzuelas* (satirical musical dramas) were written, developed and produced for live performances in community theaters as well as in adapted versions for film and television. This revival was initially seen as a way to preserve the form. More significant, however, it also provided a viable, alternative medium for highlighting social events and articulating social issues not addressed by the mainstream media during the Marcos regime, e.g., political repression, human rights violations, "cultural imperialism," poverty and economic dislocation.

▮ Bring folk artists and mass media producers together.

Collaboration between folk artists and mass media producers is absolutely necessary for successful integration of the two forms.

In projects using traditional media in environmental communication in Indonesia, Philippines, Thailand and India, AMIC ensured that performing artists were actively involved in the development of strategies and messages. The artists and the producers sat down together in production workshops. The artists educated the producers on their art and on the possibilities of conveying the environmental messages through plots, dialogues, humorous interludes, or songs and other musical intermissions, without destroying the essence of particular folk media. The mass media producers, for their part, enlightened the folk artists on the potential and limitations of the mass media. In this interface, it was essential to treat the folk artists, many of whom were uneducated, as equals or experts. They knew their art better than the producers and deserved due respect. The results were successful collaborative productions.

For example, in Tamilnadu, India, the leading *therukoothu* (street theater) artist and his performing troupe, the project staff, representatives of the state environmental agency, and video producers collectively looked at the *Mahabharata* (a Hindu epic tale) and identified an incident in the epic which could be used to convey messages on forestry and protection of natural fauna: a canto about Arjuna's sojourn to the forest. The artists were given a free hand to explore how to convey the message.

The resulting script was pretested via a live performance in a village. It was a success and led to requests from other villagers for similar performances. The *therukoothu* troupe has so far given over 75 such performances and is now booked for the next two years. Some performances have been videotaped and arrangements are now being finalized for airing these over Doordarshan, India's television network.

Mutual Reinforcement

Traditional media or forms of folk expression survive to this day as active cultural institutions. They can be effectively combined with mass media not only to expand audience outreach but also to preserve them and enrich their repertoire. Whether in their authentic form, or combined with mass media, they can continue to be functional and meaningful channels of communication in developing societies. ■

Victor T. Valbuena, from the Philippines, works as Senior Program Specialist and Coordinator of the Seminars and Institutional Development Program, Asian Mass Communication Researcher and Information Center (AMIC). He served as coordinator or advisor to the projects cited in this article. For further information, write him at AMIC, 39 Newton Road, Singapore 1130.

International Center on Indigenous Knowledge

Leading the worldwide effort to identify, preserve and disseminate traditional wisdom of farmers and indigenous societies is the **Center for Indigenous Knowledge for Agriculture and Rural Development (CIKARD)** based at Iowa State University. Established in 1987, CIKARD attempts to make this knowledge available to development professionals and researchers who recognize its value.

CIKARD's five major activities are to

- document, collect, and disseminate information on indigenous knowledge and communication;
- support the development of methodologies for recording indigenous knowledge and for incorporating it into formal and informal education and development programs;
- sponsor lectures and seminars and conduct training workshops on the use of indigenous knowledge;
- facilitate cross-disciplinary research; and
- promote the establishment of regional and national resource centers on indigenous knowledge. So far, these include an African regional center, based in Nigeria, and an Asian regional center, based in the Philippines.

CIKARD responds to information requests and publishes bibliographies and monographs. It also invites contributions of documents on topics relevant to its clearinghouse. Its quarterly newsletter, *CIKARD News*, is an excellent source of news, development, events and resources related to indigenous knowledge. Since CIKARD operates on limited funds, it charges for materials and welcomes donations from individuals or organizations. For a publication and price list, contact: CIKARD, Iowa State University, 318 Curtiss Hall, Iowa 50011, USA. Telephone: (515) 294-9503.

Resources

Indigenous Knowledge

The Information Center for Low-External-Input and Sustainable Agriculture (ILEIA) collects, exchanges and disseminates information on sustainable agriculture through a network of some 4,500 affiliated groups and individuals. The 1990, no. 1, edition of its quarterly newsletter is devoted to local agricultural knowledge and features many articles from Third World specialists as well as an extensive resource listing. Cost: US $12.50 for Third World organizations (groups may also apply for a free subscription), $25 for others. Contact: ILEIA, Kastanjelaan 5, PO Box 64, 3830 AB Leusden, The Netherlands. Tel: (31-33) 94-30-86. Fax: (31-33) 94-07-91.

We have found the following three papers especially valuable as background in understanding the importance of indigenous knowledge:

- "Toward a Knowledge of Local Knowledge," by Constance McCorkle, originally published in ***Agriculture and Human Values*** (Summer 1989);
- "Indigenous Knowledge as a Key to Local Development" by David Atte (1989);
- "Using Indigenous Knowledge in Agricultural Development" by Michael Warren (1990).

All three draw upon concrete examples throughout the Third World to illustrate the rich diversity of existing local knowledge; how it can benefit research, development and extension; and the consequences of ignoring this knowledge. Importantly, McCorkle also raises caveats about the dangers of "romanticizing" local knowledge systems. The first two papers are available for $2 and $8 respectively, by writing the Clearinghouse at the address on p. 2. Warren's paper is available for $5.95 from World Bank Publications, PO Box 7247-8619, Philadelphia, PA 19170-8619, USA; cite order no. 11884.

On the horizon, ***Indigenous Knowledge Systems: The Cultural Dimension of Development***, edited by Michael Warren, David Brokensha and Jan Slikkerveer, promises to be a definitive scholarly examination of local people's existing knowledge, modes of decision-making, organizational forms, and experiments and innovations. The book contains chapters by 70 contributors from 11 countries who span fields ranging from anthropology to veterinary medicine. Available by late 1991 for US $76.50 from Kegan Paul International, PO Box 256, 118 Bedford Court Mansions, Bedford Ave., London WC1B 3FW, UK.

A special edition of ***Agriculture and Human Values***, vol. 8, nos. 1&2, also edited by Michael Warren, will focus on indigenous agriculture and environment knowledge systems and development. The volume will examine the role of indigenous agricultural knowledge and feature case examples from countries ranging from China to Kenya. Available for $18 (individuals) or $20 (institutions) from the journal's editorial offices, PO Box 14938, Gainesville, FL 32604, USA.

Indigenous Communication

An annotated bibliography on indigenous communication is currently being developed by Paul Mundy and Lin Compton (authors of article, p. 1) and will be available by July 1992. It attempts to go beyond existing bibliographies on folk media to include entries on the communication aspects of indigenous organizations, indigenous forms of instruction, and the indigenous communication of technical information through record-keeping, demonstration, etc. An index of key words allows access by topic and geographical area. Available for $7.50 from CIKARD (see box, p. 21, for address).

For a historical and analytical view of the role of performing arts in development, pick up Kees P. Eskamp's ***Theater in Search of Social Change*** (1989). This well-researched book, based on literature reviews as well as the author's extensive travels, presents numerous case studies from Africa, Asia, and Latin America. Cost: $22.50 ($16 for those from developing countries). Available from the Center for the Study of Education in Developing Countries, Nieuwe Parklaan 9, PO Box 90734, 2509 LS The Hague, The Netherlands. Tel: (31-70) 35-10-591. Fax: (31-70) 35-10-596.

Traditions for Tomorrow

Since 1986, Traditions for Tomorrow has collaborated with groups in Central and South America that work to preserve and strengthen their ethnic identity. By helping groups obtain equipment and materials, it supports locally initiated projects related to indigenous traditions. For example, the group currently assists·

- an oral tradition workshop created by a Nahuatl Indian community in Mexico, which publishes a volume of stories, stages dramas, and conducts research on medicinal plants;
- a printing workshop in Guatemala that publishes works on Mayan culture;
- efforts by Peruvian Indians to produce a "peasant encyclopedia," which documents local tools, musical instruments, songs, supernatural visions, etc. and is also used to boost literacy.

Although Traditions for Tomorrow is not itself a funding organization, it acts as a liaison between community groups and potential donors, both private and public. It will not support pre-existing projects but instead encourages groups to invite them for a site visit to discuss project ideas. Contact: Traditions for Tomorrow, BP 477-07, 75327 Paris Cedex 07, France. Tel: (33-1) 47-05-1624. Fax: (33-1) 45-56-05-51.

What's New, What's Coming

Communication Research

A newly established Participatory Communication Research Network invites individuals to submit papers for a discussion that will take place during the next International Association for Mass Communication Research conference in Brazil, August 16-23, 1992. The network has been created to strengthen participatory research for communication policy and planning. The discussion will summarize basic characteristics of participatory research methods, address critical issues and present case studies. Topics include folk media, social movements, national and cultural identity, assessment of extension programs, quantitative and qualitative research methods, action research and more. Submit abstracts by January 1 and full papers by May 1, 1992, to Jan Servaes, Catholic University of Nijmegen, Institute for Mass Communication, PO Box 9108, 6500 HK Nijmegen, The Netherlands, Tel: (31-80) 612-322, Fax: (31-80) 615-938; or to Tom Jacobson, State University of New York at Buffalo, Department of Communication, 338 MFAC - Ellicott Complex, Buffalo, New York 14261, USA, tel: (716) 636-2141, Fax: (716) 636-2086.

New Publications

Technology Transfer from Researchers to Users **by Herbert F. Lionberger and Paul H. Gwin. University of Missouri Press, 1991. 189 pp. US $12.50. (Extension Publications, University of Missouri, 2800 Maguire, Colombia, MO 65211).**

Lionberger and Gwin, both longtime authorities in the development communication field, have produced an extensively revised edition of their 1982 textbook, formerly titled *Communication Strategies.* In nine chapters, they cover topics such as basic agricultural extension concepts and practice, applications from diffusion research, and the respective roles of interpersonal and mass media communication.

Most chapters close with suggestions for practical strategies — for example, pointers on communicating with groups, guidelines for media development, and worksheets for planning national and local extension programs. Annotated references guide motivated readers toward more in-depth study. The textbook has been used to train extension workers in Egypt, Pakistan, and African countries, and plans for a Mandarin Chinese edition are being discussed.

Editing and Publication: A Training Manual **and** *A Handbook for Trainers of Editing and Publication* **by Ian Montagnes. Manila: International Rice Research Institute, 1990. Cost for both books: US $32 for industrialized countries, $7 for developing countries. Add $11 for air or $3 for surface mail postage. Available from the IRRI Information Center, PO Box 933, 1099 Manila, Philippines.**

Scientific research conducted in developing countries is ultimately intended to be used by extension workers, farmers, health care professionals, teachers, and other practitioners. But often research results never reach these people. According to this training manual and its companion handbook, what is needed to overcome the problem are more trained editors who can report the results of scientific research to those who can use it. Both books are the result of an editing and publication training course conducted from 1985 to 1988.

The training manual provides simple, clear lessons in proofreading, editing, production management, and publication design. It also includes chapters on editing for the specialist and as well as for the nonspecialist, highlighting the editor's important role as a bridge between the researcher and the audience. The manual can serve a useful reference tool as well.

The handbook includes sample exercises for trainers and provides guidance in developing a training course. Both books were created with an international audience in mind and use examples from developing countries covering a range of disciplines to illustrate the lessons.

—Valerie Lamont

Contributors Invited

The ***Journal of Development Communication***, a new and promising quarterly journal published in Malaysia, invites academics, journalists and development communication practitioners to contribute articles on any development communication topic. Papers should be no longer than 20 pages, double-spaced, and should include references. Authors should provide a short description of their background and a passport-sized black-and-white photo.

Although the journal emphasizes scholarly research and analysis, short reports on project development, research, seminar findings as well as notices of future events are also welcome. The journal also encourages authors and publishers to send publications for review. Submit materials to: The Editor, *Journal of Development Communication*, AIDCOM, APDC Building, 9th floor, Persiaran Duta, 50480 Kuala Lumpur, Malaysia. Fax: (603) 254-3785.

Request to Readers

If you follow up on a notice or resource listed in these pages, say that you heard about it through the *Development Communication Report*!

Reader's Page

Letter to the editor:

I am writing in response to Alfonso Gumucio-Dagron's observations on social marketing [*DCR*, no. 73]... to lend a different perspective based on my experience as director of a program that used social marketing strategy to promote family planning . . . in Jamaica.

I appreciate [the author's] candor . . . . Without doubt, there is similarity between social marketing and the "trickle-down" relationship between North and South that was prevalent in the '60s and early '70s. However, although social marketing embraces the use of straight advertising techniques, it does not rely entirely on raw advertising . . . and I daresay it would be a dismal failure if it did.

The genesis of social marketing strategy may be in the United States, but its growth and development has taken place in developing countries, where various groups and organizations have successfully employed these techniques to raise people's consciousness and sensitivity about one or another socio-economic issue. As with any imported idea, be it from the North or the South, some . . . tailoring must occur to make it appropriate and useful to local needs; and there have been measurable successes in Jamaica, Mexico, Singapore, Nigeria, Zimbabwe, to name a few countries. . . .

Contrary to the charge that "development communication and social marketing can merge no better than water and oil can mix," I suggest that there cannot be effective social marketing without development communication. Mass media campaigns do not a program make. While these channels are the easiest means to influence a large and diverse population, greater effectiveness is achieved when they are combined with an interpersonal approach. Small group and person-to-person discussions as well as the availability of efficient service is an integral part of any social marketing strategy. It is here that the strategy of raising consciousness or reaching a "passive audience" turns to one of motivating community participation and action. And while [social marketing] may rely largely on influencing the individual, it also relies heavily on peer group influence to sustain its effect . . .

However, one significant drawback of social marketing is the expense involved. Often, too much money is required to develop, pre-test, and run a successful mass media program and not enough is put into maintaining efficient participatory communication and social development.

Barbara Reuben-Powell
Former Director of Information,
Education and Communication
National Family Planning Board
Jamaica

To Our Readers:

With this edition, we introduce a regular "Reader's Page," at the request of many readers who responded to the 1990 survey. It will feature letters, commentary, news of projects, and humorous items. Once again, we encourage readers to submit contributions — we cannot accommodate your request for greater involvement if you do not cooperate! Contributions to this page should be **brief** (100-400 words) and should address timely, current topics.

We will also use this page to announce future *DCR* themes. Themes of the next four editions are:

- *DCR* no. 75 (1991/4); "Information Technology and Telecommunications" covering the revolution in the use of fax, and current trends in telecommunications and satellite based information systems. Deadline: December 1, 1991.
- *DCR* no. 76 (1992/1): "Environmental Communication Revisited," with emphasis on the role of journalists and communication strategies related to urban environment. Deadline: February 1, 1992.
- *DCR* no. 77 (1992/2): "What's New, What's True in Health Communication?" reflecting on the experience over the last decade. Deadline: May 1, 1992.
- *DCR* no. 78 (1992/3): "Development Communication: Where Is It Now?" presenting current debates and thinking in the field and interviews with Development Communication specialists. Deadline: August 1, 1992.

Themes and schedules are subject to revision.

We invite contributions to these issues in the form of articles, case studies, book reviews, notices of resources or events, and commentary. Materials might address field experiences, research findings or opinions related to the topic. However, we cannot guarantee publication of all submissions. Articles that present an original experience or analysis and that are written in clear, concise prose are more likely to be accepted. Also, we give priority to contributions from Third World authors working at the grassroots level.

Contributions should be brief — 1,200 words or less for articles, 750 words or less for editorial commentary and book reviews — and should be accompanied by a brief description of the author, as well as a complete contact address, telephone and fax numbers, if available. We also encourage the submission of photographs or illustrations to accompany written materials; they will be returned following publication. Please submit all materials to the Editor at the address listed on page 2.

— The Editor

Development Communication Report

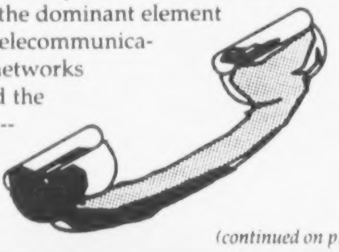
No. 75
1991/4

Information Technology: What About the Plain Old Telephone?

by Greta S. Nettleton

While researchers and development practitioners are rightly excited about the opportunities afforded by new telecommunications technologies such as CD-ROM, data broadcasting, small satellite antennas, and remote database access, there is a tendency for everyone to overlook perhaps the most important telecommunications element of all--the plain old telephone.

Voice telephone service is still by far the dominant element in all telecommunications networks around the world -- par-



(continued on p. 2)

Packet Radio - The "Missing Link?"

by Gary Garriott

The lack of reliable communication with remote regions has posed a difficult obstacle in the implementation of development projects for decades. While regions in Asia, Africa and Latin America are expanding communications channels through modern digital switching equipment and even fiber optic technology, many rural areas continue to be isolated. The development of telephone circuits accessible to economically marginal groups is occurring slowly, when at all. Inexpensive digital technologies such as packet radio, however, while not replacing the lure and utility of voice telephone, may now be a viable low-cost

(continued on p. 5)

SatelLife: Lifelines throughout Africa

by Kathleen Selvaggio

Throughout Africa, efforts to spread the news of epidemics, advise health care workers in times of need, or simply report and administer immunization programs are frustrated by the inability to communicate. Without the precious resource of timely and accurate health information, the value of health care providers and medicines are drastically reduced. Now, a brand-new project known as SatelLife is designed to make this resource available to health care workers across the region. Using microsatellites and ground stations, SatelLife will link health care providers and health researchers who depend critically on up-to-date information to address medical and health problems.

SatelLife was conceived in 1985 as initiative of International Physicians for the Prevention of Nuclear

(continued on p. 8)

Inside this Issue ...

Principles into Practice

Econet
The Environmental
Computer Network 11

When Disaster Strikes:
Communications
Technology in the Sky 12

When Disaster Strikes:
Making Decisions on
the Ground 13

The (Solar) Power to
Communicate 18

Resources 21

Reader's Page 21

What's New,
What's Coming 22

Yes, but ...

The Information Revolution
Need Not Exclude the
Poor 24

Development Communication Report

***Development Communication Report*, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 7,000. The newsletter is available free of charge to readers in the developing world and at a charge of $10.00 per year to readers in industrialized countries.**

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Institute for International Research, in association with Creative Associates International and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in the *Development Communication Report* are those of the authors and not necessarily of its sponsors. Original material in the Report may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication
1815 North Fort Myer Drive, Suite 600
Arlington, VA 22209 USA
Telephone: (703) 527-5546
Fax: (703) 527-4661

Michael Laflin, Director
Kathleen Selvaggio and Andrea Bosch, CoEditors
Valerie Lamont, Information Specialist
Earlington McLetchie, Librarian
Mariel Escudero, Production & Circulation Manager

***Development Communication Report* is produced using desktop publishing under A.I.D. contract DR-5831-Z-00-8028-00.**

. . . the Plain Old Telephone, continued from p. 1

ticularly in developing countries. *DCR*'s own survey in 1989 revealed that the readers rated the telephone as the most important information technology in your daily work (39 percent) followed by regular mail (17 percent) and personal computers (14 percent).

In spite of this, the value of telephone service for health, community development, social linkages, education, and government administration remains almost totally unexplored. The only available studies assess the economic growth associated with improved infrastructure and are heavily slanted towards convincing policy makers to invest. Other than these papers and a few user surveys done in Senegal, Costa Rica, Egypt, and Sri Lanka, little analysis shows the impact of the telephone upon the lives of people. The evidence lies in the stories told in villages without telephones.

Without a Phone

During a stay in a small village in Central America, one researcher came across a man who was fatally injured in an accident. The only available car was broken down. Without the timely arrival of the researcher, the man would not have reached a clinic.

An unusual illness hit a remote community in Africa. Local medical professionals were unable to contact their colleagues to warn them or to access advice. More people than needed be, fell deathly ill.

Telephone service does more than connect voices far apart in distance. Much of the "high technology" telecommunications systems today rely on the fundamental technology of telephone lines. Facsimile, packet radio (see VITA, p.1), and electronic mail (see EcoNet, p.11) use the telephone infrastructure. Once connected to the outside world by telephone, the complementary technologies are countless and the difference in information exchange is invaluable.

Waiting for a Line

Despite the clear contribution of telephones, they are still scarce in many areas of developing countries. Potential subscribers in areas that have infrastructure may have to queue up for years to get a new line installed and most rural areas do not have the basic access. Similarly, existing urban service can be of such poor quality that attempting to make a call during busy hours may prove frustrating. It may seem that the transmission of electronic mail or a facsimile may not be worth the expense. Potentially poor reception should not be a deterrent in deciding whether to build and improve telephone systems, however. Error correcting technology can enhance transmission and the capability of telephone lines significantly. (see VITA, p.1 for specific information)

Trends

Significant progress in telecommunications occurred in newly industrialized countries where communications was made a priority by the government. The most outstanding examples are in Asia, where Hong Kong, Singapore, Taiwan and South Korea have attained telephone density statistics equal or better than countries in southern Europe. In the 1960s and 1970s, Brazil developed the best system in Latin America, although it has since lost ground due to insufficient investment. Other countries, such as Mexico, Malaysia, Thailand, and the oil-exporting Arab states, have pursued comprehensive telecommunications expansion programs with notable success. Still, it is difficult to define the investment in communications infrastructure as a cause or result of successful development. Either way, it is clear that all other areas of development can be enhanced through the sharing of information.

Recent figures show that over the last 25 years, developing countries in general have made significant strides towards expanding telephone service. In 1969, developing countries (comprising about three quarters of the world's population) only had about 7 percent of all installed telephone lines in the world. By 1988, this figure had nearly doubled to 12 percent with the average telephone line density for developed countries at 35.1 per 100 people, compared with (still comparatively low) 1.5 per 100 people in developing countries.

This positive development reflects changes in underlying attitudes toward the telephone as a tool for economic and perhaps, social development. Twenty-five years ago, many development practitioners would have disregarded telephone service as a luxury when compared to other needs, such as agricultural extension, transportation systems, etc. Today, the question is not whether to extend basic telephone services, but who should own them.

The Telephone of the '90s

Even though the telephone still looks more or less the same as it did ten years ago, the range of services it can access has changed dramatically. In nearly every country in the world, the public telephone networks that used to provide mainly voice telephone service are slowly being made capable of transmitting faster and larger amounts of information. Behind the scenes, in the telephone switching stations and under the streets in the cable conduits, old analog technology is being replaced by digital technology and copper wires by optic fiber cables.

In most urban areas in Latin America, and many urban areas in Asia and Africa, one can unplug one's telephone and plug in a facsimile machine and transmit information as easily as making a voice call. Slow and medium speed modems can do the same thing with the textual information from a personal computer.

Technologies are merging. Whether it is one person talking to another, one fax machine talking to another, or one small computer talking to another, the process and much of the infrastructure is the same. New technologies such as cellular or mobile telephones also indicate that telephone systems are expanding into other areas of communications as well. The network broadens.

Evidence shows that people want telephone service. Statistics put out by the International Telecommunications Union show that modern communications tools such as leased data lines and facsimile machines are spreading rapidly in the developing world. (See tables 1 and 2) Leased data lines are not part of the public network and are very expensive to use, but they are one of the few available statistics to show how much new technology is spreading to developing countries. (Facsimile statistics are estimates, and are probably much higher in reality.)

Table 1

Growth of Number of Facsimile Machines in Some Developing Countries*

	1986	1988		1986	1988
Botswana	122	812	**Iran**	150	620
Brazil	n.a.	20,090	**Malaysia**	1,415	13,702
Colombia	n.a.	17,090	**Thailand**	1,512	5,453

** Figures are probably much higher, in reality*

Table 2

Growth of Leased Data Lines* in Some Developing Countries

	1981	1988		1981	1988
Brazil	58	20,821	**Malaysia**	n.a.	8,206
Colombia	150	16,314	**Mauritius**	11	112
Fiji	13	233	**Rwanda**	3	3
Ethiopia	0	13	**Senegal**	n.a.	512
Ghana	n.a.	15	**Tanzania**	11	715
Indonesia	n.a.	1,628	**Thailand**	38	11,913

** Special digital line used primarily by business to electronic transfer of large amounts of data electronically*

Development Agencies and the Telephone

Historically, there has been a bias against telephones in social development programs. Development agencies and NGOs are only just beginning to involve

(continued on p. 4)

. . . the Plain Old Telephone, continued from p. 3

Inter-American Development Bank

This woman can now make calls from San Jose de los Pozos in Central Panama where public telephones have recently been installed.

themselves with these types of communications networks. In the past, where simple technologies were preferred, telephones were unavoidably "high technology". On the other hand, where complex technology was encouraged, telephones were often taken for granted. Perhaps the desire for the glamor of a new, magical solution to old problems deterred them.

In social development projects, where money is almost always tight, cost plays a tremendous role in determining what kind of telecommunications technology which can be considered. Newer but costly technology such as cellular phones, for example, will probably not play a large role in the developing world. Although the purchase of the machine may be difficult and expensive due to import duties, facsimile can be used for essentially the same price as a regular phone. At the same time, electronic mail and linkages to telecommunications networks can be extremely cost effective.

There are also institutional problems. Efforts to expand telephone access are usually dependent on resolving difficult external problems that are beyond the control of the phone company itself, much less a development agency outside of the sector. Moreover, telephone companies that provide poor service are seldom popular with their users. Finally, the telephone company in developing countries is almost always controlled by the government and can be used as a tool for information control and public surveillance. The privatization of telephone services is rapidly becoming a focal area to development agencies. Should public telephone companies be owned privately, systems could face a whole new set of assets and liabilities for its users.

Other services outside of the voice telephone network should be considered. In rare instances, telegraph service, although very slow, is highly subsidized by the government, and may be the cheapest option for short messages. More commonly, telex is still a good communication as option for some purposes in many developing countries because it avoids the congested public telecommunications network altogether and is therefore more reliable. As a result, telex is still growing rapidly in developing countries, even as it is being dropped by users in the developed world.

When making a decision about whether to include a telecommunications component into a project or to begin the design of a telecommunications project, it is important to remember that the fascination with the engineering details is far less important to the eventual success of the project than is a sound framework of thinking about needs, users, budget and the availability of local infrastructure. While there is usually more than one way to solve a communications problem, and all should be considered, engineers can often solve technical problems. The real planning vision is needed in designing a project that effectively serves the needs of the intended people and sets the stage for increasing the capability of the system over time. Today, as was true decades ago, the telephone is still the technology of choice. ■

Greta Nettleton is a private consultant specializing in telecommunications in developing countries. For further information, contact her at P.O. Box 75, Palisades, New York 10964. Telephone and fax: (914) 359-0513.

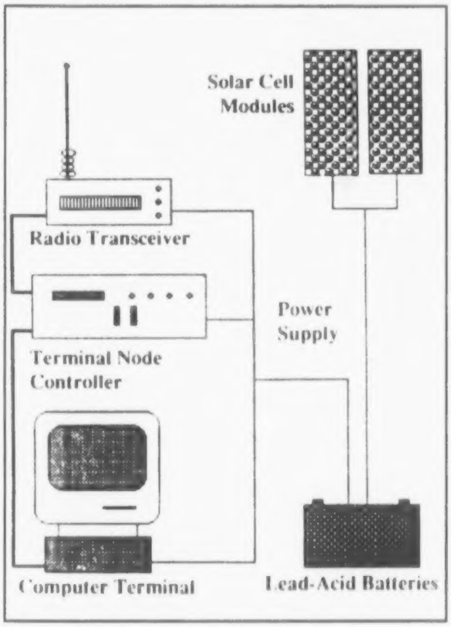
Packet Radio, continued from p. 1

alternative in bridging the "last mile" gap which plagues the distant client or the end-user with specialized requirements.

What is Packet Radio?

Packet radio combines two mature and relatively low-cost technologies -- two-way radio and personal computers -- in a system that permits the computers to communicate with each other over radio circuits. Analogous to computer communication via modem over telephone lines, packet radio is easy to use and permits the transmission of messages, letters, spreadsheets and reports without the need for manual transcription or intervention. Packet radio networks can be simple or complex, depending on communication needs.

The "terminal node controller" (TNC) or, more simply, the packet controller is the distinguishing device which marries the personal computer to the two-way radio. The TNC performs many functions including error-checking, where short bursts of audio tones containing the digital information are checked. Unlike normal fax and some other digital transmission modes that do not check for and correct errors, the high reliability with which packet radio encodes and decodes digital information means that sophisticated computer programs, data files and even graphics can be transferred from one point to another accurately.



Packet Radio Schematic Diagram

When using packet radio, the radio connections will be about as good as they are on voice radio, that is, packet transmissions will probably be acceptable if voice radio contacts are strong and intelligible. If signals are weak or interference and static are high, packet radio will not work as well.

Some radio frequencies are more suited for packet transmissions than others. These are the VHF (very high frequency) which range from approximately 30-300 megahertz (MHz) and UHF (ultra high frequency) which range from 300-3000 MHz. While "high frequencies" (HF), typically 3-30 MHz, are less ideal, distances between stations can be much longer (1-3,000 kilometers) as compared to VHF/UHF which are typically within 100-150 kilometers.

In theory, it is possible to adapt existing two-way radio stations to packet radio stations when certain characteristics are present. In most cases, new radios are preferable because later technology more easily accommodates packet communications. An analysis of the current system can determine the feasibility of using existing technology.

What Has It Done?

Military uses of packet radio have been widespread. Persistent rumors have claimed that users of packet radio technology have included RENAMO in Mozambique, the Eritreans in Ethiopia prior to the recent overthrow of the Mengistu regime, the contras in Nicaragua, and some marxist factions in the Philippines. Anti-drug packet radio networks have also been used throughout Latin

(continued on p. 6)

New CDC Bulletin Board Service

The Clearinghouse on Development Communication offers a Bulletin Board Service (BBS) called CDCNET accessible through computer communications software packages and computer modems. CDCNET will present listings of upcoming events of interests to development communication practitioners and others.

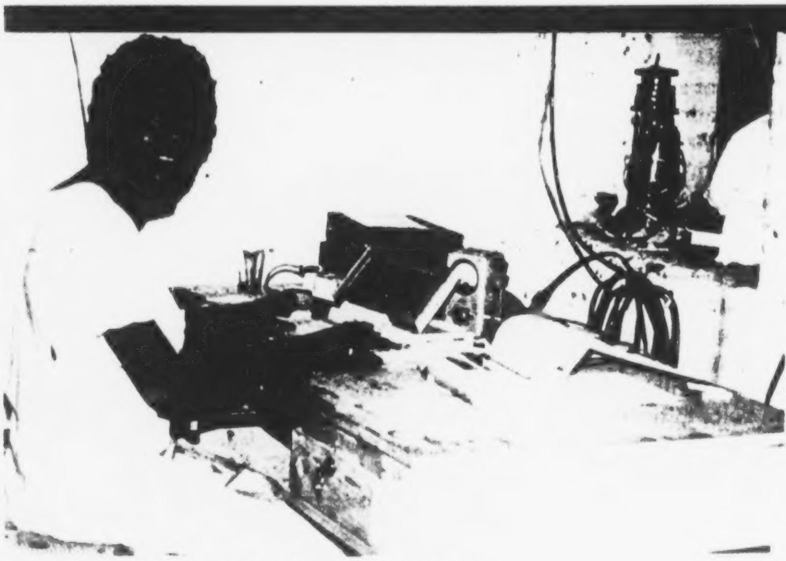
Callers to the CDCNET BBS will be able to view and download articles from current issues of the DCR. Issues can be ordered by leaving a message for Earl McLetchie or Valerie Lamont in the Clearinghouse electronic mailbox. Technical questions should be directed to Mark Prado. Further information on how to order Clearinghouse publications, both from the US and abroad will be provided on the screen.

The service is available via baud modem by dialing (202) 296-7778 for 2400 baud modem users. Individuals equipped with 1200,9600 and 14400 baud modems can also dial (202) 466-5353.

Addresses include: E-mail: Internet cdc@f349.n109.z1.fidonet.org Fidonet: 1:109/349 Information about the service is also available by writing the DCR.

The cost of using the CDCNET BBS will be based on the user long distance telephone carrier. Local access is free.

Packet Radio, continued from p. 5



VITA

A packet radio system in Lower Atbara, Sudan

America.

The first known humanitarian use of packet radio was by VITA in 1986 when two VITA volunteers traveled to Ethiopia invited by CARE and the Ethiopian Relief and Rehabilitation Commission. A demonstration between CARE offices in Addis Ababa and Dire Dawa, several hundred kilometers to the north, successfully exchanged logistical information on food supplies for several weeks. Since then VITA has installed such "terrestrial" networks and trained local staff in the Sudan, Philippines, Chad and Jamaica. Additional studies and demonstrations have taken place in Nigeria, Tanzania, Mozambique, Pakistan, Afghanistan, Lesotho, and Kenya. The packet networks in Jamaica and the Philippines have extended preparedness and search and rescue information to isolated areas during and prior to disaster relief efforts.

What Else Can It Do?

Non-commercial packet experimentation in Latin America and in India has also been extensive. Most applications involve the transmission of administrative messages which either required frequent repeats or the use of multiple languages and have, therefore, been inefficiently transmitted by voice radio, if at all. In these cases, packet radio facilitates the provision of a hard copy. Because non-text files such as spreadsheets and database result sets can also be transmitted, these administrative applications are likely to increase as computer skills beyond wordprocessing continue to expand.

Perhaps the most exciting application of packet radio technology is the adaptation to store-and-forward messaging via inexpensive satellites in low-earth orbit. When in polar orbits, such satellites traverse all points on earth at least twice a day. During these "passes" -- typically ten to fifteen minutes long --hundreds of pages of text (or the equivalent in other kinds of files) can be uploaded or downloaded to addressees somewhere else in the world using currently available technology. VITA has been a pioneer in this application, beginning in 1983 when the "Digital Communications Experiment" developed by VITA staff and volunteers was launched on a University of Surrey (UK) spacecraft. In 1990 the "PACSAT Communications Experiment" was launched, sponsored by VITA to operate on special frequencies. Today development and relief-related demonstration groundstations are being installed by VITA and others throughout the world, with the emphasis on Africa. Space applications of packet radio currently emphasize information exchange and dissemination on topics in health, education and energy/environment as well as administrative and logistical information related to relief and development programs and projects. The launch of VITASAT-A in 1993 will mark the first low earth orbiting communications satellite in history totally dedicated to humanitarian ends.

What about Installation and Cost?

When choosing between terrestrial and space applications of packet radio, generally, within-country communication is best achieved by ground-based packet radio networks, while packet radio in space is usually preferred for between-country communications. Unusually large countries (Brazil) or dispersed nations (Kiribati) may also benefit significantly from packet radio satellites.

Whether in space or terrestrial environments, experience thus far indicates that a minimum of one week per station is necessary for installation and training. Two levels of training must be provided: operator and "systems engineer." Operator training is usually accomplished within a matter of hours with anyone who has some DOS and wordprocessing computer experience. "Systems engineer" involves troubleshooting and problem-solving. This experience is generally provided over a period of some weeks through "on-the-job" practice and tasks assigned by the more experienced installers. A moderately-skilled radio or computer technician is a prime candidate for the system engineer level of responsibility.

Determining the specific variables and cost needed to install and operate packet radio requires a study of the environment. Excluding the computer, terrestrial packet radio station hardware and software can cost anywhere from $2000 to $10,000 each (installed), but the cost depends largely on the quality of the radio required. For example, a cheaper radio could be used in a desert environment where interference is low. Comparable "fixed" and "portable" satellite stations can range from $1,500 to $5,000. In both terrestrial and space environments, important variables include the quality of the antennae system, and the availability of stable electricity from mains or generators or from solar panel/battery combinations.

Commercial TNC and radio manufacturers, primarily in North America, Europe and Japan, are hotly competing for government and military contracts overseas, where per station costs can easily exceed $20,000. To our knowledge, VITA is the only organization that has been promoting lower cost alternatives by adapting hardware and software made available through the amateur radio marketplace for relief and development applications. VITA is able to provide a series of packet radio-related services, from conducting needs analyses and feasibility studies to actual installation and training and post-project technical support.

What is the Future of Packet Radio?

The greater the links, the greater will be the utility of packet radio. Not only can terrestrial networks separated by great distances be linked through packet radio satellites, but they can also be interconnected with inexpensive "landline" (telephone) networks, such as FidoNet and BITNET or the Internet. Constant advances in technology indicate a continued dynamic and growing marketplace. Unfortunately, security concerns and regulatory issues cloud the rapid dissemination of this technology in many developing nations, even for humanitarian ends.

Packet radio is not a panacea for solving the age-old communication dilemmas from remote areas. It presupposes that computers have been introduced for reasons other than communication and that indigenous skills have reached levels where it is natural to transfer computer-generated files and programs to other locations. It also assumes that a progressive-minded government is investing in and providing its citizenry with more of the potential benefits of information technology, including those at the socioeconomic periphery. Much still needs to be learned about how these systems work best given disparate geographical and socioeconomic settings.

The use of packet radio technology is one way to ameliorate the marginalization associated with living in distant regions by providing connections to other individuals and networks, nationally and internationally. Packet radio is a "hot" personal medium, meaning that "real human callers" (popular electronic mail terminology) are present on each end. For this reason, the technology deserves the attention and scrutiny of those committed to the expansion of information delivery systems toward the evolution of person-mediated "knowledge networks". ■

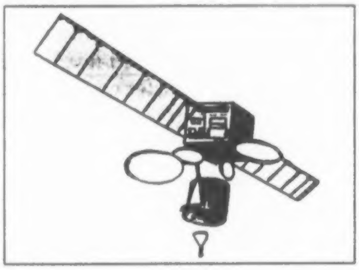
Dr. Gary L. Garriott, is the Director of Informatics at VITA; 1815 N. Lynn Street, Suite 200, Arlington, VA 22219, USA; (703) 276-1800.

The first known humanitarian use of packet radio was by VITA in 1986 when two VITA volunteers traveled to Ethiopia.

SatelLife, continued from p. 1

War (IPPNW). Incorporated as a non-profit organization in 1988, the SatelLife made its public debut in July 1991 when it launched a micro-satellite called HealthSat into orbit. Over the past year, the SatelLife has established ground stations in six African countries including Kenya, Mozambique, Tanzania, Uganda, Zambia, and Zimbabwe, and in Canada. By early 1992, the ground stations will be fully operational.

And this is only the beginning. Prospective users in Ghana, the Congo, Botswana, and across the ocean in Brazil are working to set up ground stations in their countries. The World Health Organization has expressed interest in using the system for its immunization programs and other operations in dozens of African countries. Altogether, SatelLife expects to add about 10 more ground stations by late 1992, and 20 more the following year. To service the growing demand, the project plans to launch a second satellite into orbit in 1993 or 1994.



Why Africa?

The project has chosen to focus on Africa because, along with enduring the world's worst economic poverty, it also suffers from severe "information poverty." This already desperate situation worsened during the economic crisis that hit Africa with tidal wave force in the 1980s. Governments, under pressure to adjust economies, made severe cutbacks in health services and slashed imports that required foreign exchange. The consequences have been devastating for the health and medical community. For example, a 1989 survey by the American Association for the Advancement of Science found that, beginning in the early 1980s, medical libraries throughout the continent had canceled subscriptions to foreign medical journals and books and few had renewed subscriptions since. Only health practitioners who are able to travel abroad can review recent literature.

Reportedly, there are more telephones in Tokyo than in all of sub-Saharan Africa (excluding South Africa). Few African health professionals can avail themselves of on-line data bases, and those who can, often personally pay high user fees and line charges. In the field, health officials have inadequate means of maintaining contact with central offices for reporting, coordination, and administration. Ultimately, what this means is that health professionals plan without facts, make decisions based on out-of-date information, and pursue research that might be irrelevant or redundant. "Health care workers' lack of access to information is one of the single most important obstacles to providing quality health care in Africa," remarks Firoze Manji, the International Development Research Center's Regional Representative, Health Sciences Division for Eastern and Southern Africa.

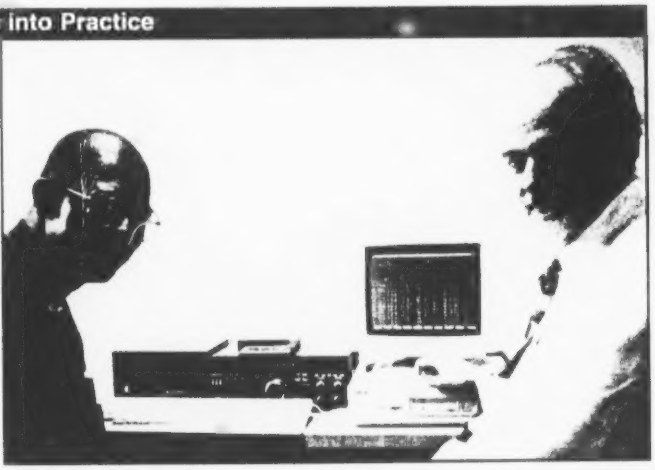
The Promise of Technology

SatelLife proposes to challenge these constraints by giving health care providers access to high-tech tools that will bring them into direct and regular contact with one another. The ability to communicate with colleagues via electronic mail with other countries in the region and in other parts of the world will permit health professionals to exchange information as well as gain access to a rich pool of research material normally available only in countries of the North. For example, nurses and doctors based in rural areas who face a medical emergency could get expert consultation or backup support from doctors and public health officials hundreds of miles away -- or even abroad. Before embarking on a research project or formulating health policies, researchers or policymakers could consult current research from medical journals such as the New England Journal of Medicine or solicit opinions through a computer conference. And, rather than travel to the capital city to find out where medicines can be obtained or how many hospital beds are available, they could simply make the inquiries via electronic mail. With the use of SatelLife's tools, health professional can make the most of their scarce human and material resources.

Although the possibilities introduced by SatelLife are exciting, some skeptics have raised questions about its appropriateness, given Africa's lack of basic health resources such as medicines. SatelLife's deputy director Julia Royall remarks that, when confronted with these objections, African health professionals "..are outraged at the suggestion that they don't need to be part of the expanding global information network."

Still, even those who acknowledge the importance of health information question whether high-tech computers and satellites are really the answer to Africa's health information problems. Would it make more sense to improve conventional systems such as telephone and postal services? Royall responds that improving telecommunication infrastructure would require enormous investment and years of construction -- requirements beyond the capability or focus of a project such as Satellife. Meanwhile, projects like SatelLife can begin serving immediate health needs faster, cheaper, and more efficiently.

Still others have questioned whether the project serves the needs of health care providers at the local level, those who suffer most from infor-



Mackey McLeod and Charles Clements at a SatelLife ground station

mation underflow. Charlie Clements, Satellife's executive director, explains that by locating ground stations at universities, major hospitals, and national health offices, the project is first engaging an educated elite. But, he says, this is a deliberate strategy and a first step, since these centers are likely to have the technical support necessary for maintenance and repair of the computer and radio commitment. Presently, he notes, these centers throughout the region are lacking in basic information resources and cannot effectively serve either researchers or health care field workers without such a network. Eventually, the project plans to extend the network to healthcare workers at the village level.

How It Works

The SatelLife system operates with a few simple components. The satellite itself weighs only 50 kilograms (about 100 pounds) and is no larger than a beach ball. It travels north to south in low-earth orbit -- 500 miles high -- circling the globe once every 100 minutes. At this rate, it is within reach of each point on earth at least twice a day. It is capable of supporting as many as 500 ground stations, with each transmitting or receiving 100 pages of electronic mail per day.

The satellite continuously transmits a signal that can be detected via radio ground stations. On the earth, the ground station -- consisting of a personal computer attached to a radio transmitter/receiver -- responds with a recognition signal, and the satellite then sends any messages "addressed" to that destination and picks up any outgoing messages. Communication links rely on low-cost, packet radio technology developed by the US-based group Volunteers in Technical Assistance (VITA -- see p. 1 for a more complete description of packet radio and ground stations). The ground station can act as a hub for up to a dozen separate users, who can transmit and receive messages, documents, etc. through personal computers and modems. The entire communication system linking the satellite, ground stations and users is known as Healthnet.

To ensure that it is responding to actual needs, the SatelLife project does not peddle its wares in a country unless there is a motivated group of users. Before setting up a ground station, a SatelLife representative introduces the idea to a range of potential users, including physicians, medical researchers, medical librarians, computer science personnel, health policymakers, networks of doctors or nurses, and in-country representatives of international agencies. If interest is strong, they are encouraged to form a users council.

(continued p. 10)

The Voices Behind the Technology

Often in the glitter of high technology we forget the human element. Technology can seem so far removed from the people it serves or from the motivations of the people who conceptualized its use. But SateLife was always meant to be more than just a "high-tech" network. Its history is steeped in the effort to empower physicians and health care workers in developing world communities who could benefit from improved communication and access to information.

It was the early 1980s. U.S. President Ronald Reagan had recently unveiled the Strategic Defense Initiative otherwise known as "Star Wars"; a multi-billion dollar defense program that mobilized the latest computer and space technology against the U.S.'s cold war adversaries. Physician and peace activist Bernard Lown had another vision: space could be used for peaceful purposes. It could be used to unite people across borders around a common goal of improved health. In 1985, SateLife was born.

In an effort to wage peace, satellite technology was chosen because it offered present possibilities rather than future promises. According to Bernard Lown, the founder, facilitating *communication* among people was the important element -- the mechanism was incidental. The people and the machines together created the network.

The voices behind SatelLife are real. Bernard Lown is also the co-founder and co-president of the International Physicians for the Prevention of Nuclear War (IPPNW), together with Evgueni Chazov of the Soviet Union. For their work mobilizing doctors against a potentially deadly nuclear confrontation, Lown and Chazov received the Nobel Peace Prize in 1985.

The voices who are able to speak through the HealthNet telecommunications system created by SatelLife are also real. On a continent not well supplied with reliable telephones, an electronic mail system which uses satellites rather than telephone infrastructure has connected even the most remote voices to each other at an affordable price. This achievement fulfills a major goal of communicators: to provide systems that really work.

SatelLife, continued from p. 9

Once accepted, the council must arrange a site for the ground station, and locate persons to staff and maintain the station. They also must initiate the process of applying for a license from the national authorities. SatelLife provides them with the computer and radio technology and technical assistance in operating the system as well as guidance in gaining an operating license.

Costly? It's Relative

Two questions SatelLife staff commonly encounter are "Isn't it expensive?" and "Who is funding it?" Since SatelLife officially opened its doors in the end of 1988, the project has drummed up close to US $2 million in support, about half of which was spent on manufacture and launch of the satellite. Considering that commercial satellites cost about $250 million, these costs are low by comparison -- though still sizeable by the standard of development projects, especially those initiated by private, non-profit groups.

Without doubt, SatelLife reaps financial benefits from the prestige of its high-profile associates. Its founder, Bernard Lown, is a Nobel Peace Prize winner (see box), and leading Soviet, African, Latin American, Canadian, and US scientists and health experts sit on its board of directors. SatelLife has attracted one half of its funds from leading private foundations, including US media mogul Ted Turner's foundation and the Japanese semiconductor maker NEC Corporation, whose corporate philosophy of using computers to bring people in communication with one another embraced the goals of the Satellife project.

Future Hurdles

SatelLife has taken measures to anticipate and address technical difficulties. Colleagues in Africa are well trained, for example, in problems that plague local telecommunications systems. They have been able to locate on-site technical staff or users with basic computer experience who are willing to be trained in the project's operations. SatelLife also benefits from collaborating with other organizations such as VITA and people in the field. In a number of pilot countries, for example, amateur or ham radio operators in the community have been quite helpful in providing voluntary technical assistance in radio-satellite communication links.

As with other high-tech communications alternatives, gaining a license can be slow process. Authorities who closely guard access to communications technology may delay the approval. While this bureaucratic slowdown is real, so far, the project has not been denied a license in any country.

The future of SatelLife and other projects which advocate and adapt satellites for humanitarian purposes looks bright. In a human environment where the real needs of food, health care and stability overwhelm our senses, it is sometimes difficult to envision high technology solutions. But through linking people and information to each other, people build the bridges; projects like SatelLife only facilitate the process. ■

For further information, contact SatelLife, 126 Rogers St., Cambridge, Massachusetts 02142, USA. Telephone: (617) 868-8522. Fax: (617) 868-6647. E-Mail: PNSATELLIFE

Association for Progressive Communications Member Networks

Alternex, IBASE, Rua Vicente de Souza 29, 22251 Rio de Janeiro, Brazil. Tel: 55(21)286-0348. Fax: 55(21)286-0541. E-mail: suporte@ax.apc.org

Chasque, Miguel del Corro 1461, Montevideo 11200, Uruguay. Tel: 598(2)496192. Fax: 598(2)419222. E-mail: suporte@ax.apc.org

Econet, PeaceNet, ConflictNet, Institute for Global Communication, 18 de Boom Street, San Francisco, CA 94107, USA. Tel: (415)442-0220. Fax (415)546-1794. E-mail: support@igc.org

GreenNet, 23 Beveden Street, London N1 6BH, England. Tel: 44(71)608-3040. Fax: 44(71)253-0801. E-mail: support@gn.apc.org

Nicarao, CRIES, Apartado 3516, Iglesia Carmen, 1 Cuadra al lago, Managua, Nicaragua. Tel: 505(2)26228. Fax 505(2)26180

NordNet, Huvudskarsvagen 13 nb., S-121 54 Johannesshov, Sweden. Tel: 46(8)600-0331. Fax: 46(8)600-0443. E-mail: support@pns.apc.org

Pegasus Networks, P.O. Box 424, The Epicentre - Border St., Byron Bay 2481 NSW, Australia. Tel: 61(66)856789. Fax: 61(66)856962. E-mail: support@peg.apc.org

Web, Nirv Centre, 401 Richmond St., Suite 104, Toronto, Ontario M5V 3A8, Canada. Tel: (416)596-0212. Fax (416)974-9189. E-mail: spider@web.apc.org

GlasNet, Ulitsa Yaroslavskaya 8, Corpus 3 - Komnata 111, 129164 Moscow, Russia. Tel: 7095 217 6173 or 7095 217 6182. E-mail: avoronov@glas.apc.org or Tocl@glas.apc.org

ComLink, Moorkamp 46, D "W" - 3000 Hannover 1, Germany. Tel: 49 511 350 3081. E-mail: D.loebner@link-hh.zer C.herwig@link-m.zer

ECONET: The Environmental Computer Network

Telecommunications networks and electronic mail are opening lines of communication all over the world. Telecommunications Bulletin Board systems are already being used in a number of organizations in Ethiopia, Kenya, Uganda, Tanzania, Zambia, Zimbabwe and South Africa. The NGONET Africa project, based out of the Environment Liaison Centre International in Nairobi is attempting to build networks among NGOs everywhere. MANGO or Micro-computer Assistance for NGOs has a bulletin board in Zimbabwe and plans to assist in the establishment of a third bulletin board in Ghana. ESANET (Eastern and Southern African Network is a project to link researchers at universities in Uganda, Tanzania, Zambia, Zimbabwe and Kenya. HealthNet is operated by the SatelLife company and is spreading throughout Africa. (see SatelLife, p.1)

Now there is a network for the environment and peace called EcoNet.

What is EcoNet?

EcoNet is an international computer based communications system committed to serving organizations and individuals who are working for environmental preservation and sustainability. EcoNet is a community of persons using the network for information sharing and collaboration with the intent of enhancing the effectiveness of environmentally-oriented programs around the world.

Where did EcoNet come from?

EcoNet is affiliated with the Association for Progressive Communications (APC), a worldwide body of member networks created to provide low-cost global communications services for people and organizations working for the environment, peace, conflict resolution, health and public interest. APC attempts to empower local indigenous organizations by encouraging expertise in and technology for computer networking.

How does EcoNet work?

EcoNet, like other electronic mail systems, works by sending electronic messages through telephone lines to nodes or e-mail centers (for more information about e-mail, see DCR #67). Nodes bounce messages to each other so that a message of virtually any length can be transmitted from Tokyo and be received in Nairobi almost instantly at very low cost. Through connection to a node, your personal computer with modem can be linked to the EcoNet system--and the rest of the EcoNet users around the world. Electronic "gateways" allow you to send telex and facsimile messages and mail to users on many other e-mail systems and international e-mail networks.

Dial locally, Act globally

EcoNet offers easy to use tools for posting your events and preparing joint projects, and finding and discussing current information on environmental topics. The resources available through the EcoNet system include the Sierra Club National News Report, action alerts and newsletters from around the world. Users include specialists on various environmental topics. These connections allow the users to be in constant communication with a wide range of internationally active environment organizations and individuals.

Public Electronic Conferences

Interactive public conferences on EcoNet let you read and participate in discussions on issues of interest to you. The public conferences focus on a wide range of environmental issues including: global warming, rainforests, water quality, energy policy, toxics and environmental education.

What is Required?

EcoNet is compatible with nearly any personal computer or terminal connected to a normal phone line through a modem. Most communications software programs are adequate. In most developing countries, public telephone companies or national post offices have public packet switching services which can be used to get on the EcoNet network and also correct for errors during transmission (it is possible to get on the network without the package switching service). A private user can open an account through the IPS facility or by contacting EcoNet directly and getting a user's number. While calling costs are generally very low, membership and connect rates vary from node to node. If you are outside a country with nodes, APC or EcoNet can help locate the public data network through which you connect.

Without the international packet switching (IPS) services, the reception will be only as good as telephone connection. However, IPS services exist in most places including 9 sub-Saharan countries, 7 Asian countries, and all but a very few Latin American countries. Electronic mail users in neighboring countries may also be able to make use of the IPS services. Presently, 92 countries are using EcoNet many remote areas and in most major cities. Known for its nominal cost to use and the promise of great communications gains, e-mail and EcoNet could be the technology of the 1990s.

For more information, contact EcoNet at the address on the opposite page.

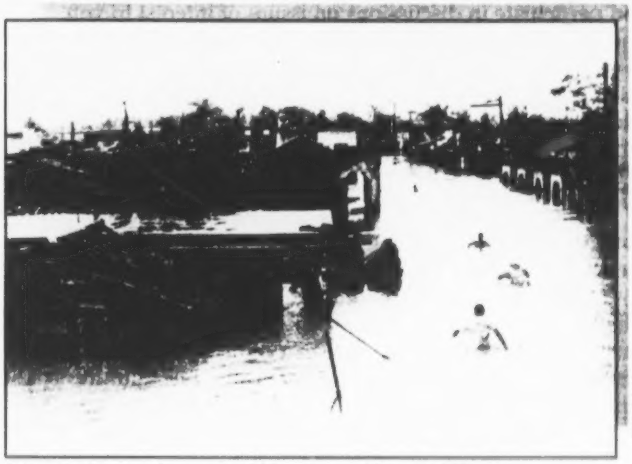
ECONET

When Disaster Strikes:

Communications Technology in the Sky

by Neil R. Helm

A review of global disaster statistics over the last 20 years reveals that there are approximately 50 disasters a year -- nearly one a week -- that require outside assistance, usually from international relief agencies. The majority occur in developing countries. Natural disasters such as earthquakes, floods, hurricanes, and fires disrupt normal patterns of living and often leave in their wake needs for food, clothing, medicine, and shelter. With growing population density, the number of casualties, the level of human suffering, and the economic losses from natural disasters are all significantly rising. These findings are illustrated by the two greatest human disasters on record that took place over the last 22 years: a tropical cyclone-tidal wave that swept over Bangladesh, claiming nearly 500,000 lives in 1970; and an earthquake in Tangshen, China, causing an estimated loss of 700,000 lives in 1976. Economic losses also continue to climb: current figures reach more than $10 billion per year, with floods alone accounting for approximately $4 billion. Relief efforts during times of disaster cannot be limited to work on the ground. In order to facilitate larger and extensive relief coordination, communications systems are looking to satellites in the sky.


UNDRO

Floods in the aftermath of Hurricane Albert, 1982.

Post-Disaster Communications Activities

Once a natural disaster occurs there are at least three activities that require reliable communications:

- **Assessment** of the nature of the disaster, levels of destruction, social upheaval, and the relief requirements;
- **Coordination** of relief activities by local, national, and international units and agencies. This coordination involves the distribution of supplies and services to the victims;
- **Restoration** of normalcy and pre-disaster conditions.

Reliable communications equipment that can be transported easily to the disaster site must be an integral part of disaster assessment, relief response, and rehabilitation efforts.

During the assessment phase, the impact of the disaster and the needs of the victims must be ascertained as soon as possible, normally within a few hours or a few days at the most. A small number of reliable voice or data channels are required to inform national and international relief agencies of the extent of the damage and what relief response is required.

Relief coordination calls for a network of telephone and data communications from the temporary headquarters established in the disaster area, out to the national and international relief agencies, and back to the staging areas, where the needed supplies and relief personnel are arriving and waiting for direction and transportation. The network should be expandable to include communication among the many relief agencies that have responded to the disaster.

The restoration process may take many months. It requires the continuation of temporary communication systems until they can be replaced with the communications infrastructure that existed prior to the disaster.

Relief workers in Kuwait using satellite telecommunications system

Limitations Before Satellites

Present disaster communications rely heavily on the local telephone or broadcasting capabilities in the affected area. These facilities are often destroyed or,

(continued p. 14)

Making Decisions on the Ground

by Dan Prewitt and Ann Stingle

Technology mismatches and communications failure occur regularly during relief operations. During large-scale famine relief in rural Sudan, refugee influxes in post-war Kuwait, earthquake relief and recovery in Armenia, and massive flooding in Bangladesh, communications systems failed. Too often, communications efforts have proven ineffective due to technology inappropriate for the setting and a lack of insight into the audience with which the communications will take place. The following paragraphs highlight common experiences of private voluntary organizations (PVOs) and outline a planning process based on the identification of primary target audiences before choosing the technology best able to reach them.

Security

While all nations have legitimate concerns about the indiscriminate use of communication technology, they are often heightened in developing countries. The commitment to use satellite technology or UHF/VHF radios may actually bring unwanted and undue scrutiny to a disaster relief operation. This reality may worsen when working in rural areas far removed from the capital or when interacting with officials who are unfamiliar with radios and other communications technology.

In 1988, for example, a medical worker in southern Sudan was held by local police in poor conditions for over a month because she had an "unlicensed" short-wave radio receiver suitable only for listening to commercial radio stations. One can only imagine the local reaction if she had been using a portable satellite system for communicating with her headquarters.

In another case, an expatriate relief worker using a licensed radio for communications from her headquarters some 500 kilometers away was arrested during a disaster situation and the equipment confiscated. Why? Because of a village rumor she was aiding anti-government rebels. She was eventually released and the equipment returned. The cost to the relief operation? Local authorities permanently stopped activities serving over 5,000 persons in the worker's region and PVO's were no longer permitted in the area.

Experience also shows that the "higher tech" the system, the more likely that it will be viewed as potentially dangerous by local officials. This is particularly true of portable satellite systems that are difficult to monitor and can be transported easily. Ministries of communications and the interior can be counted on, in most countries, to impose stringent and often impossible conditions for their use. Recently, one PVO turned down a donation of satellite equipment for its operations in a particular country for this reason. The organization concluded that the administrative and political costs outweighed the increased reliability of the communications technology.

Weather and Technology

The factors which make disaster relief particularly difficult in the third world also inhibit communications systems. During the Sahel drought of 1984-85, for example, a significant increase in the number and length of the notorious "haboobs" or days-long dust storms made radio communications impossible. The oil fires and sandstorms of Kuwait played havoc with long-range communications and refugee camps on the Kuwait/Iraq border. Power surges in city mains have consistently damaged or destroyed electronic equipment of all types during disasters in past decades. While these systems may work well under normal conditions, technology mishap in times of catastrophe is common.

(continued on p.16)

Inter-American Development Bank

A one-way radio is used in the village of Santa Ines, El Salvador.

New Initiatives for Disaster Relief

Beginning in 1990, the United Nations launched an International Decade For Natural Disaster Reduction (IDNDR). A major principle of this program is that science and technology can be applied effectively to understanding natural hazards and controlling the losses associated with them. In a separate initiative, a group of experts in communications and disaster management met in May 1991 in Tampere, Finland and issued a report with recommendations known as the "Tampere Declaration on Disaster Communications." The draft Declaration was based on the major needs identified by the UN Disaster Relief Organization (UNDRO) Conference on Disasters Communications held in Geneva in March 1990. The major recommendations call upon relevant national and international agencies to:

- improve cooperation between local, regional and international entities;
- establish an inventory of equipment and resources relevant to disaster relief, and integrated into a disaster plan;
- encourage the UNDRO to maintain an international inventory of modern communications equipment;
- remove national barriers to the access and use of disaster communications equipment, for example, customs clearance, operating licenses, temporary use of appropriate radio frequencies.

While many of these recommendations have been made in past conferences, the Tampere Declaration has caught the attention of national and international decision makers and funding sources and therefore brings issues which have been traditionally handled on a case specific basis to a global forum. As a result, the prospects for an improved disaster communication system seem close. In fact, plans and proposals are now being made for a disaster network to be largely donated by national and international telecommunications organizations, integrated, demonstrated briefly, and then given to UNDRO as an operational system.

For more information about the UNDRO Conference on Disaster Communications of March 1990, see *UNDRO News*, March/April 1991. For a complete copy of the Tampere Declaration, see *UNDRO News*, July/August 1991.

...Technology in the Sky, continued from p. 12

in many developing countries, are nonexistent or overextended even during normal service.

Amateur (also known as ham) radio operators often provide the initial assessment and assist in the coordination of relief for many disasters. Although public service and emergency communications are a part of their mandate, and their personal dedication and technical skills must be applauded, they are subject to certain limitations. For example, some countries restrict the use of the amateur frequencies and in many countries there are just not enough ham radio operators to provide reliable support for relief activities. Also because most ham operators are not trained in disaster assessment, they might transmit a misleading appraisal of a disaster's impact.

Local and select military units are often called into a disaster location to provide communication and other relief support. Although their communications equipment is often powerful and sophisticated, military authorities often have difficulty communicating and coordinating with civil authorities since they usually are assigned different radio frequencies.

Perhaps the biggest limitation is the lack of priority both national governments and international agencies give to disaster relief in general and thus to disaster communications. For example, the International Telecommunications Union as well as most national governments have allocated no specific frequencies for disaster communications, although some provision is made for marine and aeronautical emergencies and public safety. This absence of priority is evident at the scene of nearly every disaster, where an ad hoc group of communications operators can be seen trying to coordinate relief activities.

Local communications are improving in some areas with the introduction of modern "hand-held" and vehicular radios, which are lighter, smaller and cheaper than the earlier generation of radios. This equipment improves initial assessment activities. However, communications links from the disaster area to national and international relief headquarters are still inadequate. As a result, it is not uncommon to see donated medicine, clothes, or tools sit for weeks at an airport or be delivered to the wrong disaster site.

Satellites to the Rescue

A solution to many limitations listed above is the use of reliable communications equipment which is specifically dedicated to disaster relief and operated by trained personnel, arranged in standby teams, who are prepared to respond at the first indication of a natural disaster. In reviewing the equipment and system requirements for a national/international disaster communications network, it is apparent that satellite communications are able to satisfy the requirements. Satellite capabilities include:

- systems established by the International Telecommunications Satellite Organization (INTELSAT) and the International Maritime Satellite Organization (INMARSAT), both consortiums that operate networks of communications satellites for commercial and maritime use, respectively;
- worldwide coverage;
- high reliability -- existing systems work more than 99 percent of the time;
- capacity for new services such as television or data communications;
- the availability of rugged, compact ground terminals. Earth terminals

often survive the impact of disasters, and smaller terminals can be carried in after a disaster.

Motivated by the series of successful experiments and demonstrations using NASA, INTELSAT, and INMARSAT satellites with small terminals, a Communication Satellite (Comsat) team designed a disaster communication system in 1977. This system had small, rugged terminals appropriate for either INTELSAT or INMARSAT service operating with larger earth or shore stations that would connect the communication to relief agency headquarters, or to any working telephone. INTELSAT even agreed to provide designated international relief agencies with some free access to its satellites. The technical and operational parts of the system were developed, tested, and were ready to be integrated into a disaster relief program. Cost studies concluded that a complete disaster terminal, including personnel, equipment, and terrestrial connections, could be supported for between $200,000 and $400,000 per year.

R&D Efforts Continue

During the 1980s and to date this disaster communication system has been restudied, presented, and demonstrated in actual disasters, but it has never been integrated into an international disaster operation. During the same period, larger more expensive commercial transportable terminals with the ability to transmit high quality television via integrated satellite networks are now commonplace at every major sporting or entertainment event.

INTELSAT has tested a lightweight "fly-away" or transportable C-band communications terminal that uses a 1.8-meter antenna and can provide a single voice channel suitable for disaster assessment. The entire terminal can be packed in fewer than ten sturdy containers that are easily transportable by air and land.

INMARSAT has also encouraged the development of small terminals for use with their satellites. Several companies have made commercial lightweight terminals for use with INMARSAT satellites that can be hand-carried by two persons. The US Office of Foreign Disaster Assistance has used such terminals in recent disasters, including the Armenian earthquake. Because of requests to produce a terminal that can be carried and operated by a single individual, one company recently designed a terminal that contains a 1.2-meter antenna, with a 220-watt transmitter, all contained in a single suitcase that weighs 29.5 kilograms (65 pounds). This terminal was used extensively by journalists and news media personnel during and after the recent military conflict in the Middle East. The capacities of these small terminals can be greatly increased by the addition of graphics and image transmission equipment such as desk-top computers, facsimile machines, and even slow-scan video equipment.

Natural disaster cannot be prevented, but our preparedness for it can be increased. With the development of reliable, satellite communications technology, catastrophes can be predicted and people, property and the environment can be better prepared for their onset. ■

Neil R. Helm is a Senior Research Scientist at the Institute For Applied Space Research, School of Engineering and Applied Science, George Washington University, Washington, D.C. 20052. Fax: (202) 994-0227.

Satellites for Advance Alert

Earth observation or remote-sensing satellites have made dramatic changes in our ability to forecast weather conditions as well as impending disasters. With improved predictions on the time and potential impact of a disaster, an advanced warning network can be established, not only for hurricanes, but for earthquakes, volcanic eruptions, seismic sea waves, and other disaster-causing activities. In addition to forecasting impending disasters, some remote-sensing satellites are able to provide reliable assessment of the results of a calamity. For example, within hours of the nuclear accident in Chernobyl, USSR, television audiences were able to view the damage through photo and infrared images taken by commercial remote-sensing satellites.

Making Decisions on the Ground, continued from p. 13

Emergency managers should be encouraged to look closely at the feasibility of communications systems in their specific situations and to proceed only after careful analysis and tailoring to fit the needs.

One alternative is military grade communication equipment. Increased engineering and fabrication "hardens" the equipment for adverse conditions and often makes the equipment more resistent to breakdown when dust, humidity, insects, extremely high or low temperatures, and inconsistent power all conspire to exceed the average manufacturer's specifications for warranted performance.

One drawback is the cost. When this equipment is available to PVOs, it costs several times as much as "off-the-shelf" equipment with similar unhardened systems characteristics.

When technical difficulties combine with a possible lack of competent technical assistance and difficult import procedures for spare parts, it is clear that relying on one high tech system may be risky. Back-up communications networks should be considered before a breakdown.

Maintenance and Cost

Predetermining the degree or type of "user friendliness" can reduce bad choices. While computers and radios continue to be relatively easier to use, work forces in many countries may not be able to install, maintain, and operate such systems without extensive outside help. Rapid advances in electronic systems design tend to far outpace the availability of technical expertise in many parts of the world. When a technology relies too heavily on outsiders to provide technical assistance or maintenance, it is probably not going to remain useful or cost effective.

Both the cost of setting up a system and the cost of using it are important. The cost of a satellite-transmitted phone call from the operations headquarters on a disaster can run approximately $20 per minute. This applies to incoming as well as outgoing calls so that it is difficult to control the engagement of the system and the subsequent cost incurred. A facsimile message, while cheaper, costs approximately $10 per minute. Without stringent controls on use of the system, the bill for overhead expenses on a relief operation can soar.

Planning on the Ground

Given the constraints cited above, how should a PVO approach the use of current technology in increasing the efficiency of a relief operation? Determining the communications needs involves knowing the various disaster relief audiences. For example, prior to the cyclone that struck Bangladesh, hundreds of thousands of people were able to be evacuated and their lives saved because of a basic radio network that had been established by the Cyclone Preparedness Program throughout the endangered coastal areas. The network consisted of 57 stations and substations and provided easy, low-cost, low-maintenance communication for relief workers in advance of the storm. It was further used during subsequent relief operations to communicate with headquarters and among relief workers at the substations. In this case, expanding the radio system proved to be an effective and efficient means of enhancing reliable communications.

Know Your Environment

The use of satellites, repeater radio systems, and other new developments in communication technology should not be discouraged. Instead, emergency managers should be encouraged to look closely at the feasibility of these systems in their specific situations and to proceed only after careful analysis and tailoring to fit the needs. While good communications systems can save lives, well-intentioned but poorly executed systems can hinder relief efforts and even cost lives. ■

Dan Prewitt is the International Delegate for American Red Cross and has been the head of delegation of the International Federation of the Red Cross and Red Crescent societies in Sudan, Kuwait, and currently, in Moscow. Ann Stingle is the International Communication Associate for the American Red Cross. For further information, contact the American Red Cross, Corporate Communications, 17th and D Streets, NW, Washington D.C. 20006, telephone: (202) 639-3395.

Choosing Communications Technology According to Your Audience

Relief staff on-site to other workers in the same or adjacent geographic area: The cost factors and environmental conditions may make any "hi-tech" approach impractical. Because the information to be transmitted is likely to be a two-way exchange or question/answer, one-way technology is not useful. Simple hand-held radios are the most efficient vehicle for rapid information delivery. However, due to variables in distance, availability of batteries and charging, developers of communication systems may need to look at ways to make short-range radio systems more efficient. In the meantime, face-to-face communications will continue to be a primary communications device.

On-site relief personnel to the operations headquarters and vice versa: Circumstances are similar to the above, except that the situation often calls for longer range equipment, such as UHF and sometimes VHF. Preparation is of utmost importance as the procedure for licensing and permits for such equipment is can be cumbersome. Similarly, relief workers must be trained to use the equipment, which can be difficult in the midst of a major calamity.

Operations headquarters to international headquarters: In this case, satellites could be extremely useful in letting those who are sending supplies know what is needed, where it is needed, and in what quantity and format. It also allows the people in charge of the operation in-country to know what shipments or personnel to expect and when.

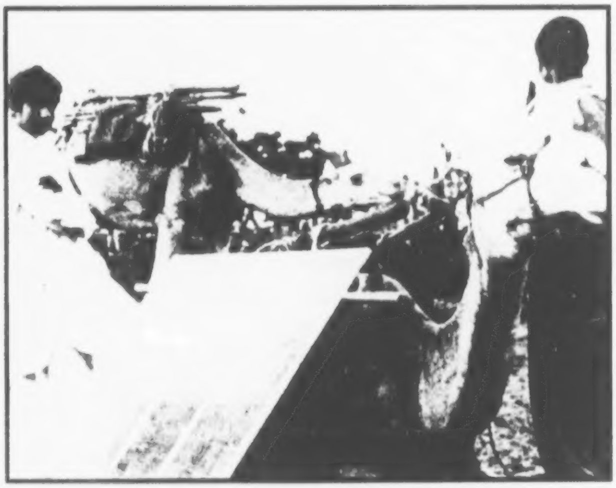
From operations headquarters to the media: The media often have their own transmission equipment tailored to their needs. The technology needed by the relief organization for communication may be nothing more than a battery-powered personal computer or even a typewriter. On the other hand, problems may arise in some countries where the media, particularly western media, are viewed with skepticism or hostility. In such cases, designing the content of the message overshadows the means of transmission.

From relief workers to the affected population: This may well be the most critical target audience. Alert systems to evacuate an area, notice of shelter locations, warnings regarding polluted water following a disaster and other urgent health messages need to be communicated to the potential or actual victims. Technological requirements for transmission are very basic, as in the case of radio systems used in the Bangladesh Cyclone Preparedness Program. Local media can also be helpful in reaching certain target populations.Often, however, the communication tools needed are cultural and human. Accessing the people-to-people network and offering accurate information through local leaders and organizations is essential. Satellites cannot replace loudspeakers for mobilizing a population before or after a catastrophe, nor can they be as effective as community leaders or village chiefs in affecting the behavior of people at risk.

The (Solar) Power to Communicate

by Grace Belcher

Solar-powered distance education programs have proven valuable and effective in rural areas where it is particularly difficult to attract and retain high-quality teachers. In one area in Mexico, high school classes are broadcast through solar power over a six-hour period. The estimated cost? Approximately US $2,200-$2,400 per school. In health, solar-powered two-way radios have been installed as part of the communications system for remote medical systems in Mexico, Ecuador, Kenya, Zimbabwe and Guyana. In each case the radios operate efficiently over distances of more than 200 kilometers. In the Gambia, solar-powered VHF radio communication systems are being used between health centers in remote areas and the capital city for consultations and emergency medical assistance.


VITA

Solar panels will power water-pumping units in Pakistan.

Developing countries the world over are discovering a reliable and low-cost source of energy for small-scale communications systems: the sun. In the Sudan where messages were previously carried by hand for long distances or by poorly transmitted telex or radio, the United Nations Development Program (UNDP) has designed a solar-powered packet radio system for communicating data from five field offices scattered throughout the country. UNDP's success has led to plans for similar systems in the Philippines, Jamaica, Ethiopia, Mozambique, Tanzania, and Lesotho.

The Solar Alternative

Energy in rural areas has been commonly provided through gasoline powered generators. In recent years, however, solar energy or photovoltaic systems (PV) have been successfully used in a variety of applications including electrification, water supply and as the examples show, communications. PV systems permit closer contact between rural and urban centers without the incessant noise and complicated maintenance of a generator.

Over 10,000 PV systems are being installed worldwide every year. These range from relatively large telecommunications systems operated by governments or private companies to small radio systems used in homes or in local communication. Whether the application is fiber optic cable systems for data transmission or mobile telephone, PV systems are cost effective and reliable.

What Is PV?

All solar energy technology is not the same. Rather than converting sunlight into heat to produce hot air or water, solar energy which uses photovoltaic cells is the direct conversion of sunlight into electrical energy using solid-state semi-conductor technology.

The basic unit of a PV system is a cell made of silicon. A number of cells are mounted, wired together on a rigid plate and sealed, usually with a tempered-glass cover, to form a module. Modules range in size from 0.5 to 60 watts of power output and have typical operating DC voltages ranging from 3 to 15 volts. Multiple modules can be joined into an array which provides the needed voltage and current for the application. By simply adding more modules, a PV array can easily be expanded as energy demands grow.

PV-generated energy can be stored in a battery. Equipment hooked up to the battery draws power from it. Thus, the PV array generates electrical current that charges the battery, while the battery stores energy and powers the equipment. The battery also provides back-up power at night and during poor weather.

The charge controller, another basic component, regulates the flow of power from the modules to the battery, and from the battery to the equipment. Inverters, which convert battery (DC) power into standard household (AC) power, can also be integrated, if desired.

Why Use PV?

PV is ideally suited to the conditions of developing countries for several reasons.

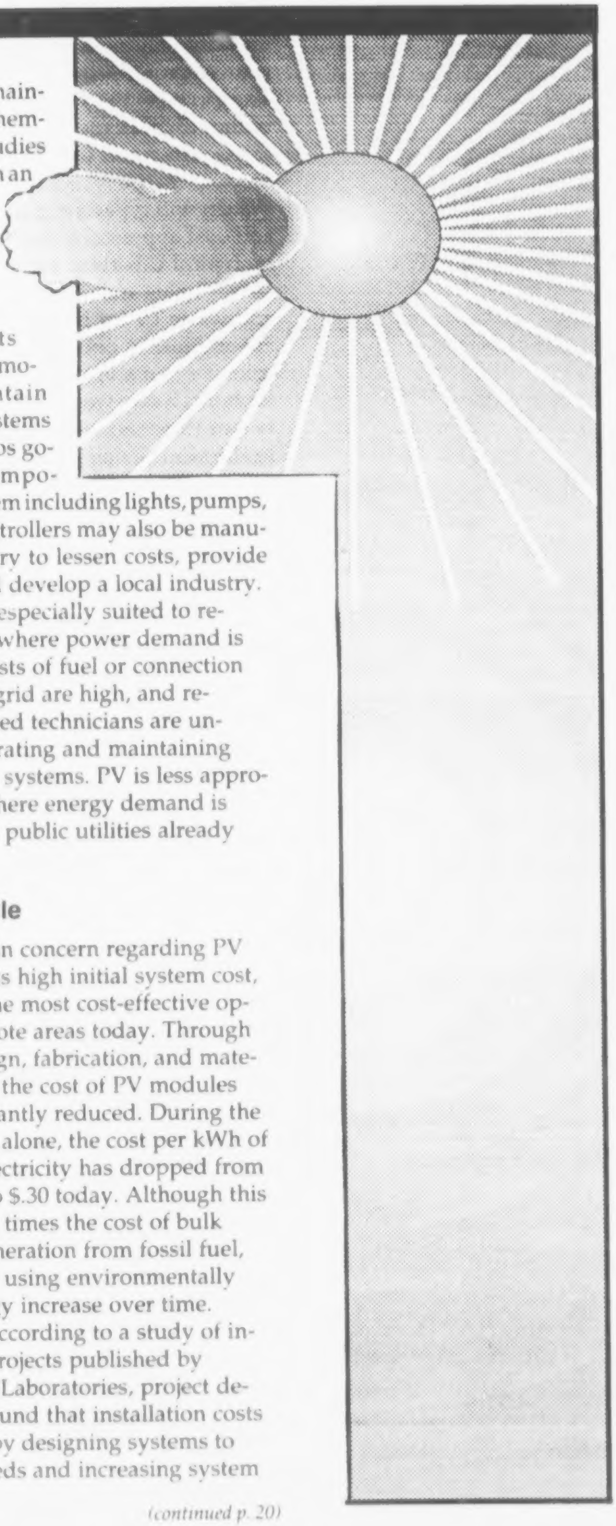
PV is reliable. It works in remote sites ranging from dry scorching deserts, to hot, humid tropical regions, to arctic conditions. PV can be used anywhere the sun shines and requires significantly less maintenance than traditional engine-generators.

PV is flexible. It can provide power for a variety of equipment with either direct current (DC) or alternating current (AC) voltages. PV is modular and can be sized to meet the energy demands of one home or an entire village.

PV is durable and environmentally safe. There are no moving parts to wear out or fail. Modules last from 10 to 30 years and have proven to be more than 97% reliable in a wide range of applications. PV does not create noise, pollute the air, or produce waste materials.

PV is cost-effective. For loads requiring a few kilowatts or less, as in most developing country applications, PV has proven to be the most economical choice. PV is often the least-cost option in villages composed of less than 50-200 buildings where each building has an annual average energy demand of less than 0.5 to 2 kilowatt-hours (kWh) per day. Once a PV system is in place, it is free from the recurring fuel costs associated with conventional energy systems. PV will continue to generate power regardless of economic or political conditions that can disrupt the cost and availability of fuel supplies. Except for the cost of spares and battery replacements (once every five years, depending on the type of battery used and maintenance), PV will continue to perform long after donors have left and aid for fuel and frequent maintenance have run out.

PV provides opportunities for local participation. There is no need for outside or expatriate technicians. Properly trained, local residents can maintain the system themselves. In fact, studies have shown that in an area where PV powers radios for entertainment and public service broadcasts, residents have been highly motivated to maintain their home PV systems to keep their radios going. Certain components of a PV system including lights, pumps, batteries, and controllers may also be manufactured in-country to lessen costs, provide employment, and develop a local industry.



In sum, PV is especially suited to remote rural areas where power demand is relatively low, costs of fuel or connection to the electricity grid are high, and resources and trained technicians are unavailable for operating and maintaining engine-generator systems. PV is less appropriate in areas where energy demand is high and reliable public utilities already exist.

The Cost Hurdle

While the main concern regarding PV continues to be its high initial system cost, PV will still be the most cost-effective option in most remote areas today. Through advances in design, fabrication, and materials technology, the cost of PV modules has been significantly reduced. During the last two decades alone, the cost per kWh of PV-generated electricity has dropped from US $60 in 1970 to $.30 today. Although this is still four to six times the cost of bulk utility power generation from fossil fuel, the paybacks for using environmentally clean solar energy increase over time.

Meanwhile, according to a study of international PV projects published by Sandia National Laboratories, project developers have found that installation costs can be reduced by designing systems to meet present needs and increasing system

(continued p. 20)

The (Solar) Power to Communicate, continued from p. 19

capacity only as needs and financial resources grow. Systems which are properly sized to meet the power requirements will reduce excess expense.

Requirements can be measured on a "per module" basis. A radio or transceiver PV system will typically require one module and cost approximately $700-$1,000, based on typical U.S. retail prices. A system to power lights and a radio or a small black-and-white TV for homes also would require one module. A one-room school using a color TV and a video recorder (or a satellite) six hours a day would need a system using two or three modules. A one-room rural health clinic using lights, a one-cubic-foot refrigerator, and a two-way radio, on the other hand, would require three to four modules and cost between $2,100 and $4,000.

Although initial costs are relatively high, the purchase of a PV system basically includes paying for a 20-year supply of energy, rather than facing the recurring costs of fuel supplies. PV makes economic sense for remote developing country applications when compared with the costs of grid extension, or operating and maintaining a generator over the life of the system.

Setting Up a System

Mounting modules on devices that track the sun's movement throughout the day increase energy output and allow the reduced generation of electricity during cloudy days, although it adds to the cost and complexity of the system. Choosing the appropriate site and selecting components with care will enhance the system's utility and performance. Batteries designed to work with PV systems are easily maintained, recharge slowly, provide power over long periods of time, can withstand numerous recharge cycles, and last five or more years. Automotive batteries are not well-suited for PV system use, but will work and operate from one to two years, depending on system use. Nickel-cadmium batteries have longer life expectancies and are able to withstand extreme weather and charge/discharge conditions, but are significantly more expensive than lead-acid batteries.

Stand-alone PV systems are adequate for generating power to run a radio; a home with lights, a radio, or a television set, and other small appliances; or a small health clinic. For critical uses where reliability needs to be close to 100%, a system using PV in combination with engine-generator, battery, or wind technologies is often recommended. The most common combination is the PV/engine-generator hybrid, where PV and a generator both charge the same battery. PV serves as the main source of power, while the generator provides back-up power for peak demand periods, or for battery recharging following periods of cloudy weather.

Installing and maintaining a stand-alone system is simple and can be done with minimal training. Systems should be checked periodically to

Inter-American Development Bank

Mauricio Ortega, physicist, showing solar cell panels used to power a water well pump.

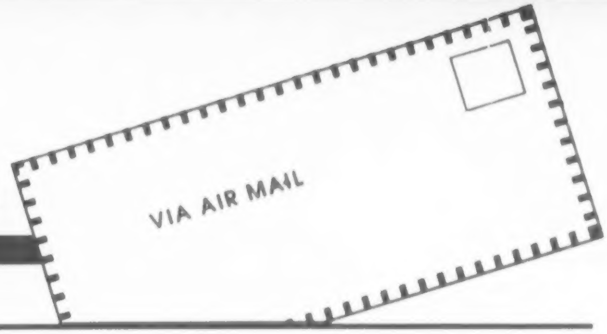
clean dust from the arrays and check battery electrolyte levels. Technicians can be trained and based in larger communities or urban centers to provide needed repairs and to service generators in hybrid systems with a few simple tools such as an electrical meter, hydrometer, plier, screw driver, and a crescent wrench.

Simplicity at Work

People don't need to grasp PV's technological complexities to understand that the sun can do more than grow crops or dry rice. It can also provide water and lighting, assist them in emergencies, help educate their children, and bring news and information about the world into their homes. ■

Grace Belcher is a Program Associate in the Energy and Environmental Systems Division of Oak Ridge Associated Universities, 1019 19th St., NW, Suite 700 Washington, DC 20036. Telephone: (202) 653-5505. Fax: (202) 653-5414. She was assisted by Ron Pate and Beth Richards from the Design Assistance Center at Sandia National Laboratories and Chris Rovero from Meridian Corporation.

Reader's Page



Continue to keep us informed of your reactions. We welcome the input of our readers. In response to the article "Tips for Documenting and Transferring Local Knowledge" in DCR #74, we received this letter.

Dear Editor:

Many thanks for the Development Communication Report. I don't think documentation of indigenous knowledge requires multi-disciplinary teams. This is unnecessary advice by people who actually may not have done much work. I have never used such teams. I am not saying that teams cannot do it, but it is not such an important issue to be mentioned as the first requirement. We need demystified messages.

You have missed several important dimensions [to acquiring and preserving indigenous knowledge], for example, [discovering] practices tried but discontinued and varieties not yet cultivated.

Best wishes and don't mind the slightly angry response.

P.S. I liked the news of Minka magazine.

Anil Gupta
Centre for Management in Agriculture
Indian Institute of Management
Ahmedabad, India

Resources

The International Telecommunication Union (ITU) makes its sizable collection of films and videotapes on telecommunications and electronics available free of charge to people all over the world. Topics cover general productions made for public information, promotion of telecommunications services or products, technical research, and technical training films. Requests for films should be made one month in advance. They are sent by air mail and must also be returned by air mail within three weeks of receipt. To obtain a film catalogue, contact: ITU Film Library, Place des Nations, CH-1211 Geneva 20, Switzerland. Telephone: (41-22) 730-5248. Fax: (41-22) 733-7256. Telex: 421 000 UIT CH.

Volunteers in Technical Assistance (VITA -- see article p. 1) has initiated a public computer conference on technology in international development. The discussion forum, called DEVEL-L, will permit exchange of ideas and information on a wide range of topics, including the role of communication technology in development. To participate, you simply need a computer with a modem. To subscribe, send a message to LISTSERV@AUVM (or LISTSERV@AUVM.BITNET), or contact: VITA, 1815 North Lynn Street, Suite 200, Arlington, VA 22209, USA. Telephone: (703) 276-1800. Fax: (703) 243-1865.

You can get an entire library about appropriate technology in a container no larger than a shoe box and weighing only 19 pounds. The compact, portable library stores books on microfiche, plastic cards containing reduced images of book pages that can withstand even humid or tropical climates. More than 1,000 volumes covering major topics about appropriate technology in development, including communication technology and nonformal education and training, are stored on the microfiche. An updated collection will be available by April 1992 for approximately US $900. Besides the microfiche library, you simply needs a desk-top microfiche reader, which can be obtained from the project for $225-$575, depending on the model. Contact: Appropriate Technology Project, Volunteers in Asia, P.O. Box 4543, Stanford, California 94309 USA. Telephone: (415) 326-8581 or toll-free (800) 648-8043. Fax: (415) 326-3475.

What's New, What's Coming

Photography Contest

The United Nations Environment Program is organizing a worldwide photography competition in advance of the United Nations Conference on Environment and Development (UNCED), which will take place in Rio de Janeiro in June 1992. Both amateur and professional photographers are invited to submit photographs that document not only the earth's environmental challenges, but also the beauty of the planet. Entries must be submitted by February 29, 1992. Winners will be announced at the UNCED conference and will receive prizes, medals, cash awards and commemorative certificates. To obtain an entry form, contact the Clearinghouse for Development Communication at the address, phone and fax numbers listed on p. 2.

Conferences

The African Council on Communication Education (ACCE) invites papers for presentation at its biennial conference, scheduled to be held in Cairo, Egypt, in October 1992. Papers should relate to the conference's theme, "Communication and the Environment in Africa: Challenges for the Future." Submit abstracts by March 1992 and full papers by June 30, 1992 to: ACCE Executive Coordinator, PO Box 4795, Nairobi, Kenya.

Courses

From June 3-June 30, 1992, Cornell University will hold its twelfth annual seminar on "Communication Planning and Strategy," open to all ministry officials and project directors who use communications in their work. The course will cover planning a strategy, analyzing audiences, message design, media selection, small group communications and evaluation. Cost: $3,575, including accommodations. In addition, it offers five graduate-level communication courses, scheduled from May through August. They include Participatory Communication and Research (May 27-June 17), Video Communication I (May 27-June 17), Video Communication II (June 22-August 4), Participatory Video Research (June 12-14 and 19-21), and Communication for Social Change (June 22 - August 4). Tuition costs $1,085 for most courses. Contact: Department of Communication, Cornell University, Kennedy Hall, Ithaca, New York 14853, USA. Telephone: (607) 255-6500. Fax: (607) 255-7905. Telex: 6713054.

From April 6-July 24, 1992, the International Extension College in London will hold a four-month course on "Distance Education for Development." The course is open to graduates or trained teachers with some experience in distance teaching and who are fluent in English. Cost: L 5,150, not including accommodations. To apply for scholarships from the Overseas Development Administration, contact the local British Council office. For more information, contact: University of London Institute of Education, 20 Bedford Way, London WC1H OAL, UK. Telephone: (44-71) 612-6606.

The Centre of Adult and Higher Education (CAHE) at the University of Manchester offers post-graduate courses in Community Development in a Third World Context. These courses have been supplemented in recent years with educational studies normally found in non-educational institutions such as Rural Development and Primary Health Care and Adult Literacy and Development Communication. For further information contact: The Secretary, School of Education, University of Manchester, Oxford Road, Manchester M13 9PL England, telephone: 061 275 3463, fax: 061 275 3519

New Resources

"Communiquemonos, Ya!" 23-minute training video and 58-page facilitator's guide. Jointly produced by UNICEF and the Nutrition Communication Project, US Agency for International Development. In Spanish. Available for US $10 in VHS or Betamax, PAL or NTSC format, from

New Telecommunications Network

The International Development Computer Users Network (IDCUN) is a newly formed network of computer users and information managers both in U.S. and in the developing world.

IDCUN's objectives are to foster communications among international development organizations, explore efficient ways to integrate computer knowledge and systems into the developing world, and promote the understanding of telecommunications and resources. Membership is free for the first year. To learn more about IDCUN or workshops on telecommunications, contact Joe McKinney at Technoserve, 49 Day Street, Norwalk, CT 06584, USA. telephone: (203) 697-6222. fax: (203) 838-6717. or Ellen LeCompte at PACT, 777 United Nations Plaza, NY, NY 10017, USA. telephone: (212) 697-6222. If you have general questions about telecommunications operations or need resources in your region, contact Gary Garriott at VITA through one of his many telecommunications addresses. 1815 N. Lynn St, Suite 200, Arlington, VA 22209. Telephone: (703) 527-0186. fax: (703) 243-1865. Internet: VITA @GMUVAX.GMU.EDU. FidoNet: 1:109\165

UNICEF and USAID offices in Latin America and the Caribbean, or from the Academy for Educational Development, 1255 23rd St., NW, Washington, DC 20037.

In order to monitor and promote children's growth, village health workers and nurses must be able to communicate effectively with mothers. This video and companion facilitator's guide are designed to be used in half-day training sessions to strengthen field worker's interpersonal communication skills. Together, they provide a basis for discussion on how health care workers communicate with mothers about their children's growth; identify six key actions that they can use to improve communication; and demonstrate ways to build better communication into growth monitoring activities. Trainees are encouraged to draw on their own experience to identify ways to improve communication. The video and guide were planned, tested and filmed in collaboration with health staff and community workers in the Dominican Republic, Bolivia, and Guatemala.

Action for Youth: AIDS Training Manual. Geneva: League of Red Cross and Red Crescent Societies and the World Organization of the Scout Movement, 1990. 184 pp. Available for 20 Swiss francs from the Red Cross, Health Department, PO Box 372, 1211 Geneva 19, Switzerland. Tel: (41-22) 734-5580.

The manual is designed to help youth workers assist young people to develop the knowledge, attitudes and skills they need to prevent the spread of the HIV virus and to alleviate discrimination against those suffering from the virus. It contains basic facts about HIV/AIDS, a guide to planning AIDS health education programs with youth, and ideas for community activities. Many of the training exercises involve games, discussion groups, puppetry, role-play and other participatory activities. The manual's amply illustrated pages are organized in a two-ring binder for easy additions and updates. French and Spanish versions are available, and in 1992, it will also be available in Arabic.

DistanceLearn '91-'92. The Institute for Distance Learning, The State University of New York, Regents College 1450 Western Avenue, Albany, New York 12203. Tel: (518) 457-4850.

This database provides up-to-date information on nearly 5000 quality courses and credit-by-examination opportunities available at a distance. The entries are offered by U.S. regionally accredited colleges or nationally recognized testing agencies. Selected courses use technology such as video, audio or computer to enhance the learning experience. Information about external graduate degrees is available through the system. DistanceLearn runs on any IBM-compatible PC with a hard drive and MS-DOS and allows users to locate courses or exams by subject, delivery system and a variety of other criteria. No special computer knowledge is required to install or operate. It is easy to use and features on-screen help.

Vanguardia Indoor Solar Radio

Citing the shortage, expense, and environmental pollution which results from battery powered radio, Vanguard Trust has designed a solar radio which can will last longer and cost less. Produced and available in China, the SR-2 low-cost solar AM receiver features one 4-inch speaker, high-power efficiency circuit board, and 1-watt (peak sunlight) photovoltaic solar panel. They hope to make this available outside China for approximately US $40 by summer, 1992. Six radios are estimated to be able to provide coverage to 150 students presently using Interactive Radio instruction. The Vanguard Trust is also developing indoor ambient light solar models which will maximize solar energy use in low light. For more information, contact The Vanguard Trust, HC 02 Box 14765, Arecibo, Puerto Rico 00612. telephone: (809) 880-4707. fax: (809) 878-6246.

The Information Revolution Need Not Exclude the Poor

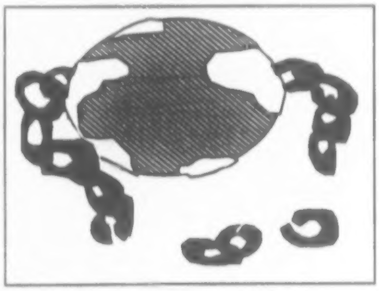
Yes, but . . .

by Sheldon Annis

In theory, nearly everyone on the globe is now potentially connectable to everyone else. Virtually all information can be converted into digital form, stored indefinitely, accumulated infinitely, and transmitted immediately. With each passing day, the physical web of interlinked communications networks grows thicker and more powerfully integrated. The result is that millions of minds, not just machines, are newly joined. Indeed, we are on the verge of a kind of wired, collective intelligence that neurobiologists can describe by analogy as a single, multi-circuited global brain. Issues such as the environment and the world economy can now be conceptualized and analyzed at global meetings of the mind.

But that is theory -- or at best, partial reality. In practice, we know that everyone is not connected. Even in the United States, one out of four children lives in poverty. In developing countries, 40% of the adult population is still not literate, much less sending e-mail to each other. Powerful scientific computer networks strengthen connections within and between regions that are already well connected, reinforcing the disparities between the technological *haves* and *have nots*.

In light of poverty, illiteracy, and technological inequality, how are we to think about our connectivity? Where and how deeply is new technology really making a difference -- and to whom? People from developing and post-communist countries often believe that technology holds the key to how to become rich. From fisherman to government bureaucrat, people everywhere are aware of and want the power of new technology. But wealth and power are elusive. While the recent technological gains made by the poor are real, those already privileged are also getting richer ininformation and technology. Money, information, and power beget more money, information, and power. Overall, gaps are widening. Communications miracles, it seems, are as inequitably distributed as is everything else.



If global communications for development is so attractive, and it is, what can be done to extend these miracles to the poor? How do we fight for *equity* within the Information Revolution? Concretely, I believe, we need to focus new energy at five levels of support:

First, back to basics: developing countries must continue to devote their highest priority to eliminating illiteracy. At its core, the communications revolution is driven not by glitzy high tech, but by knowing how to read and write. To the extent that adult literacy in developing countries rose from 43% in 1970, to 60% in 1985, the trend is moving in the right direction. But the going will get harder. Increasingly, policy makers will have to confront painful choices between high technology investment programs and technical education that is demanded by the middle class, and basic education for the rural poor. Universal literacy must remain the priority.

Second, development institutions should immediately focus their attention on new programs that directly assist the poor to enter the information age. They can do this through their lending and investment for telecommunications infrastructure and information technology, and their openness with information. Their policy advice should encourage privatization of state-owned telecommunications services, technology transfer, and support for new technology in education. Information and communications is not only an economic opportunity, but more importantly, a social opportunity.

Third, governmental bodies, foundations, and international organizations must learn to make themselves more accessible to the poor. They must work to bring grassroots organizations into the same informational and communications networks that they themselves occupy. That means efforts to dramatically extend access to computer hardware, support for training in the use of new tools, and developing direct working relationships within expanding networks of organizations.

Fourth, grassroots organizations need to stop thinking of themselves as individual organizations, but instead as webs, networks and movements. They need to build electronic, human and organizational connections among themselves. This work can be assisted through communications clearinghouses and the creation of poverty oriented training programs in the use of new technology.

Finally, individuals need to be convinced that they can act globally; and through accelerating technological and organizational networking, they can. "Widening social participation" refers not just to the incorporation of poor people who have traditionally been excluded from decision making. It also implies person-to-person, cross border engagement with scientists, educators, and activists. New kinds of alliances and political equations are in the making. The rules for the future are not yet written. The Information Revolution need not exclude the poor. ■

Sheldon Annis is an Associate Professor of Geography and Environmental Studies at Boston University. His most recent book is Poverty, Natural Resources and Public Policy in Central America, *ed. (Transaction Books, 1992). He works closely with the Telecommunications Cooperative Network and the Center for Strategic Communications in New York. For more information, contact Department of Geography, 675 Commonwealth Avenue, Boston MA 02215, telephone: (617) 353-5742, fax: (617) 353-5986.*